Instruction Sheet
PN 51A-5081P-FF-FI/rev.B
October 2007

Model 5081-P-FF/FI

FOUNDATION® Fieldbus Two-Wire pH/ORP Transmitter

For additional information, please refer to the Instruction Manuals CD shipped with this product, or visit our website at *www.emersonprocess.com/raihome/liquid/*.

ESSENTIAL INSTRUCTIONS

READ THIS PAGE BEFORE PROCEEDING!

Your purchase from Rosemount Analytical, Inc. has resulted in one of the finest instruments available for your particular application. These instruments have been designed, and tested to meet many national and international standards. Experience indicates that its performance is directly related to the quality of the installation and knowledge of the user in operating and maintaining the instrument. To ensure their continued operation to the design specifications, personnel should read this manual thoroughly before proceeding with installation, commissioning, operation, and maintenance of this instrument. If this equipment is used in a manner not specified by the manufacturer, the protection provided by it against hazards may be impaired.

- Failure to follow the proper instructions may cause any one of the following situations to occur: Loss of life; personal injury; property damage; damage to this instrument; and warranty invalidation.
- Ensure that you have received the correct model and options from your purchase order. Verify that this manual covers your model and options. If not, call 1-800-854-8257 or 949-757-8500 to request correct manual.
- For clarification of instructions, contact your Rosemount representative.
- Follow all warnings, cautions, and instructions marked on and supplied with the product.
- Use only qualified personnel to install, operate, update, program and maintain the product.
- Educate your personnel in the proper installation, operation, and maintenance of the product.
- Install equipment as specified in the Installation section of this manual. Follow appropriate local and national codes. Only connect the product to electrical and pressure sources specified in this manual.
- Use only factory documented components for repair. Tampering or unauthorized substitution of parts and procedures can affect the performance and cause unsafe operation of your process.
- All equipment doors must be closed and protective covers must be in place unless qualified personnel are performing maintenance.
- If this equipment is used in a manner not specified by the manufacturer, the protection provided by it against hazards may be impaired.

ROSEMOUNT® Analytical

EMERSON™ Process Management

SPECIFICATIONS - GENERAL

Case: Cast aluminum containing less than 6% magnesium.

NEMA 4X (IP65), NEMA 7 (explosion-proof)

Epoxy-polyester paint, Neoprene O-ring seals

Dimensions: 6.3 in. x 6.9 in. x 6.4 in. (160 mm x 175 mm x 161 mm); diameter 6.1 in (155 mm)

Conduit Openings: 3/4 in. FNPT

Reference Impedance: Transmitter accepts high impedance (i.e. glass) reference electrodes as well as low impedance (i.e. silver-silver chloride) reference electrodes.

Response Time: Display reaches 95% of final reading within 10 seconds.

Temperature Sensors: The following RTDs can be used with the Model 5081-P pH/ORP transmitter:

3 and 4 wire Pt 100 RTDs

3 and 4 wire Pt 1000 RTDs

Transmitter can also be used with two-wire RTDs.

Temperature Range: 5°F to 248°F (-15°C to 130°C)

Local Display: Two line LCD; first line shows process variable (pH or ORP), second line shows temperature and output signal. When triggered, fault and warning messages alternate with temperature and output readings.

Process variable: 7 segment LCD, 0.8 in. (20 mm) high

Temperature/output: 7 segment LCD, 0.3 in. (7 mm) high

Display board can be rotated 90 degrees clockwise or counterclockwise.

During calibration and programming, messages and prompts appear in the temperature/output area.

Power Supply and Load Requirements: A power supply voltage of 9-32 Vdc at 22 mA is required.

Security: User selected security code prevents accidental changes to program settings.

Ambient Temperature: -4 to 149°F (-20 to 65°C)

Relative Humidity: 0 to 95% (with covers sealed)

Storage Temperature: -22 to 176°F (-30 to 80°C)

EMI/RFI: Meets the requirements of EN-61326 CE

MCERTS Sira MC070112/00

Hazardous Area Classification:

Intrinsic Safety:

FM APPROVED
Class I, II, III, Div. 1
Groups A-G
T4 Tamb = 70°C

Exia Entity
Class I, Groups A-D
Class II, Groups E-G
Class III
T4 Tamb = 70°C

ATEX
CE 0600 II 1 G
Baseefa02ATEX1284
EEx ia IIC T4
Tamb = -20°C to +65°C

Non-Incendive:

FM APPROVED
Class I, Div. 2, Groups A-D
Dust Ignition Proof
Class II & III, Div. 1, Groups E-G
NEMA 4X Enclosure

Class I, Div. 2, Groups A-D
Suitable for Class II, Div. 2, Groups E-G
T4 Tamb = 70°C

Explosion-Proof:

FM APPROVED
Class I, Div. 1, Groups B-D
Class II, Div. 1, Groups E-G
Class III, Div. 1

Class I, Groups B-D
Class II, Groups E-G
Class III
Tamb = 65°C max

SPECIFICATIONS - pH

pH Input Range: 0 to 14 pH

Temperature Input Range: 5°F to 248°F (-15°C to 130°C)

Accuracy at 25°C: ±0.01 pH

Repeatability at 25°C: ±0.01 pH

Resolution: 0.01 pH and 0.1°C or °F

Stability at 25°C: 0.25% per year

Diagnostics: The internal diagnostics can detect:

Calibration Error	Low Temperature Error
High Temperature Error	Sensor Failure
Line Failure	CPU Failure
ROM Failure	Input Warning
Glass Failure	Glass Warning
Reference Failure	Reference Warning

Once one of the above is diagnosed, the LCD will display a message describing the failure/default detected.

Temperature Compensation: Automatic or manual between 5°F to 248°F (-15°C to 130°C)

Solution Temperature Compensation: Transmitter will convert pH measured at any temperature to the pH at 25°C. Temperature coefficient is programmable between -0.044 pH/°C and 0.028 pH/°C

Calibration: Automatic two-point and manual two-point buffer calibration. For automatic calibration, the transmitter recognizes NIST, DIN 19266 and 19267, JIS 8802, BSM, Merck, and Ingold buffers.

SPECIFICATIONS - ORP

ORP Input Range: -1400 to 1400 mV

Temperature Input Range: 5°F to 248°F (-15°C to 130°C)

Output Scale Expansion: Continuously expandable between -1400 and 1400 mV

Accuracy at 25°C: ±1 mV

Repeatability at 25°C: ±1 mV

Resolution: 1 mV and 0.1°C or °F

Stability at 25°C: 0.25% per year

SENSOR WIRING AND SET-UP

Wire sensor per Figure 1. Refer to the sensor instruction manual for more details.

If your sensor has an integral preamplifier or you are using a remote preamplifier, you will need to change the preamplifier location in the program menu. Please see Figure 14. Select “trAnS” for integral preamplifier or “SnSr” for J-box or sensor preamplifier.

WIRING THROUGH A JUNCTION BOX WITH REMOTE PREAMPLIFIER

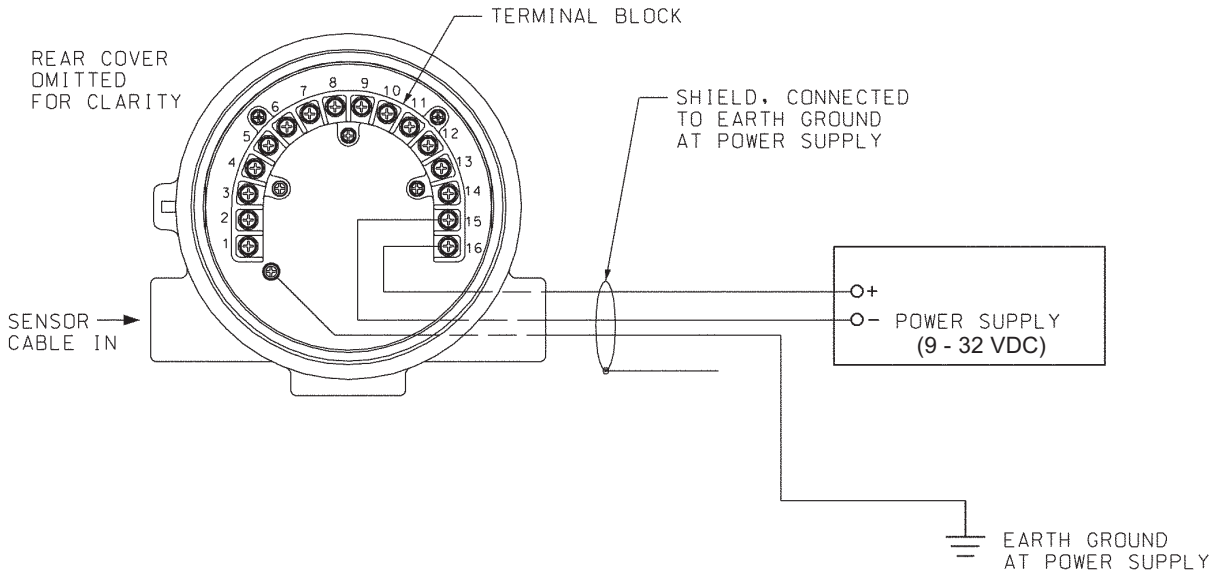
Wire sensor as shown in Figure 5. Refer to the sensor instruction manual for more details.

WIRING THROUGH A JUNCTION BOX

Sensors with integral preamplifiers can be wired to the analyzer through a remote junction box (PN 23550-00). Wire the extension cable and sensor cable point-to-point. Refer to the sensor instruction manual for more details.

POWER WIRING

For general purpose areas, wire power as shown in Figure 1. For hazardous areas, please see hazardous area installation drawings.


TERMINAL BLOCK
REAR COVER OMITTED FOR CLARITY
SHIELD, CONNECTED TO EARTH GROUND AT POWER SUPPLY
SENSOR CABLE IN
+
– POWER SUPPLY (9 - 32 VDC)
EARTH GROUND AT POWER SUPPLY

TB-1	EARTH GROUND-OUTER DRAIN	
-2	SHIELD INNER DRAIN	
-3	RTD RTN WHITE	
4	– RTD SN WHITE/RED	
-5	RTD IN RED	
-6	REF GROUND WHITE/GRAY	
⚠1 -7	REF IN GRAY	
-8	SOL GROUND BLUE	pH/ORP SENSOR
-9	pH/ORP GUARD WHITE/BLACK	
-10	pH/ORP IN BLACK	
-11	– 5V BROWN	
-12	+ 5V GREEN	
-13		
-14		
-15	–	POWER SUPPLY
TB-16	+	

⚠1 NOTE: REF wire covered with sleeving. To prevent depletion of KCL if other wires touched, remove sleeving before wiring to TB-7.

FIGURE 1. Model 5081-P-FF/FI Wiring Details

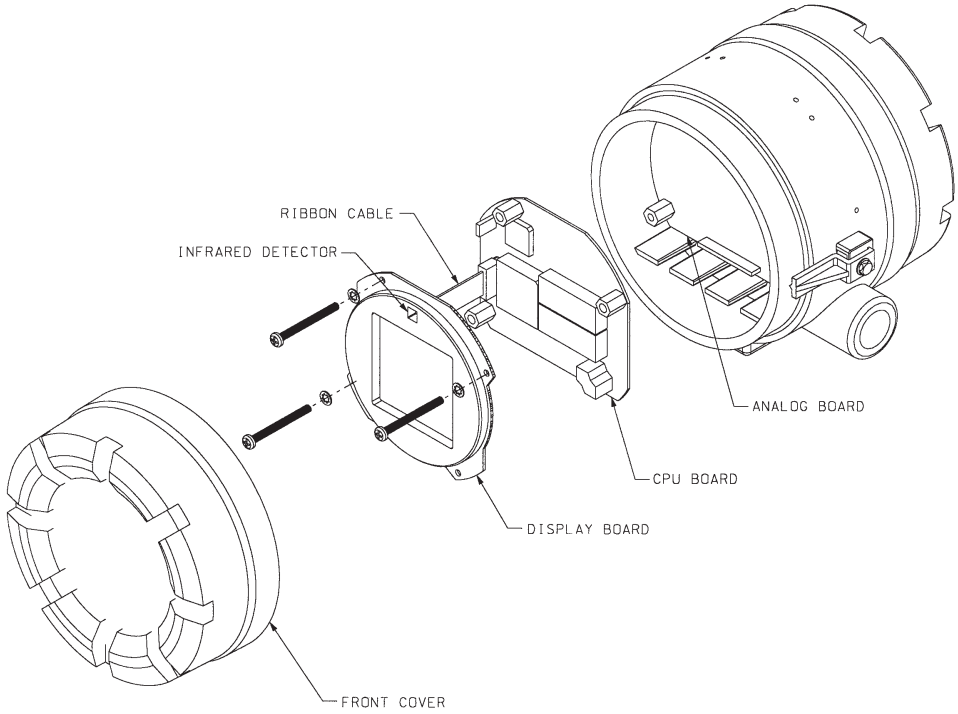


FIGURE 2. Exploded View of Model 5081-P-FF/FI

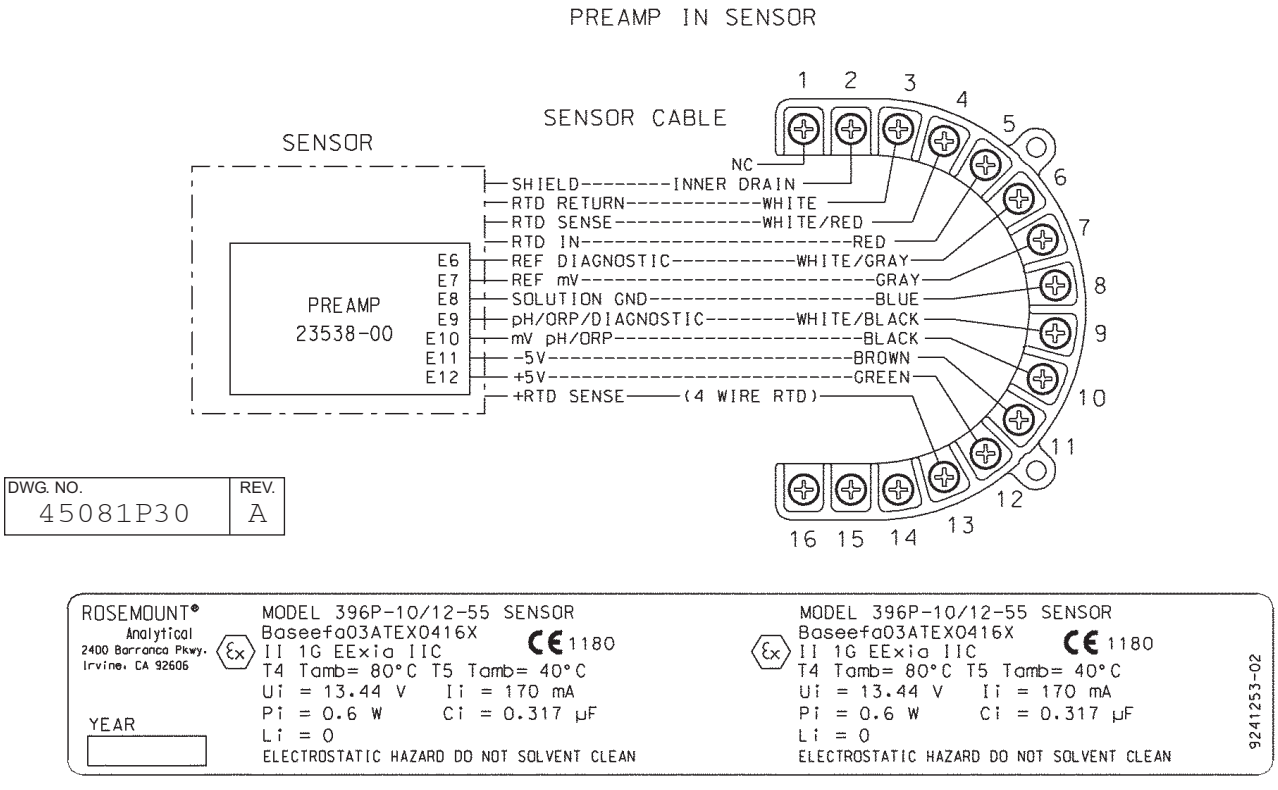


FIGURE 3. Wiring Diagram — Sensor with Preamplifier

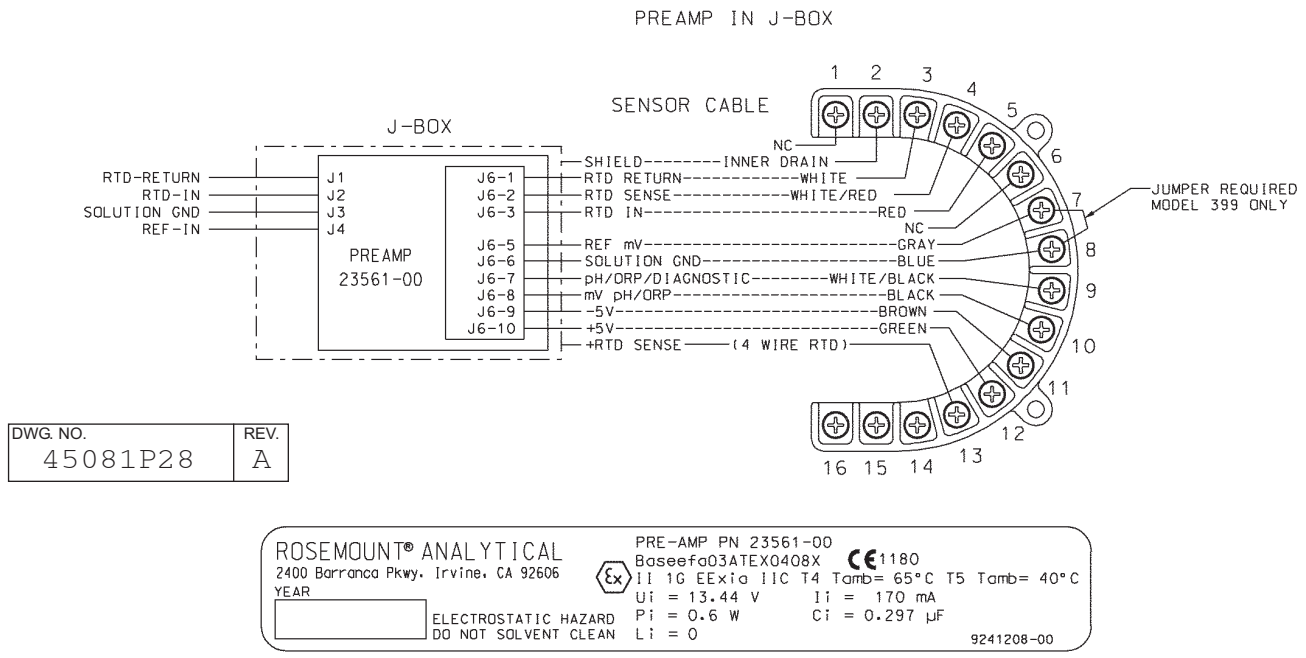


FIGURE 4. Wiring diagram — sensor Model 381+ with preamplifier

WIRING THROUGH A JUNCTION BOX WITH REMOTE PREAMPLIFIER

Wire sensor as shown in Figure 5. Refer to the sensor instruction manual for more details.

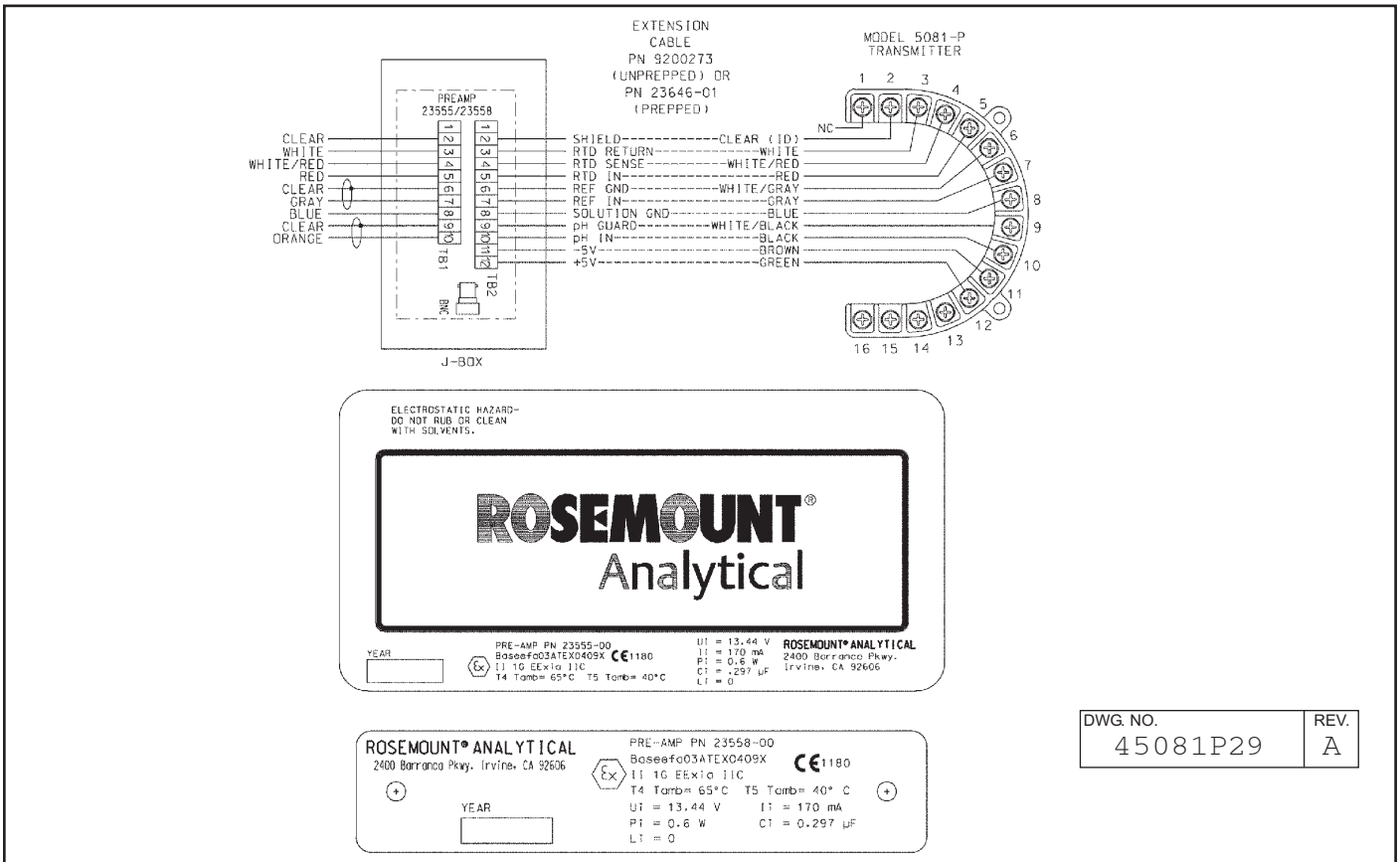


FIGURE 5. Wiring Through a Junction Box with Remote Preamplifier

INSTALLATION

UNPACKING AND INSPECTION

Inspect the shipping container. If it is damaged, contact the shipper immediately for instructions. Save the box. If there is no apparent damage, unpack the container. Be sure all items shown on the packing list are present. If items are missing, notify Rosemount Analytical immediately.

ROTATING THE DISPLAY

The 5081-P-FF/FI display can be rotated 90° left or right. Disengage the cover lock and remove the front cover. Remove the three screws holding the PCB stack and gently lift the display board. Do not disengage the ribbon cable between the display board and the CPU board. Rotate the display. The black infrared sensor will be at the top of the display.

INSTALLATION

See Figure 6.

1. Although the analyzer is suitable for outdoor use, do not install it in direct sunlight or in areas of extreme temperatures.
2. Install the analyzer in an area where vibrations and electromagnetic and radio frequency interference are minimized or absent.
3. Keep the analyzer and sensor wiring at least one foot from high voltage conductors. Be sure there is easy access to the analyzer.
4. The conduit connections on the sides of the 5081-P housing should be sealed to prevent moisture from entering the enclosure.
5. The transmitter must not be mounted with both conduit openings at the top.

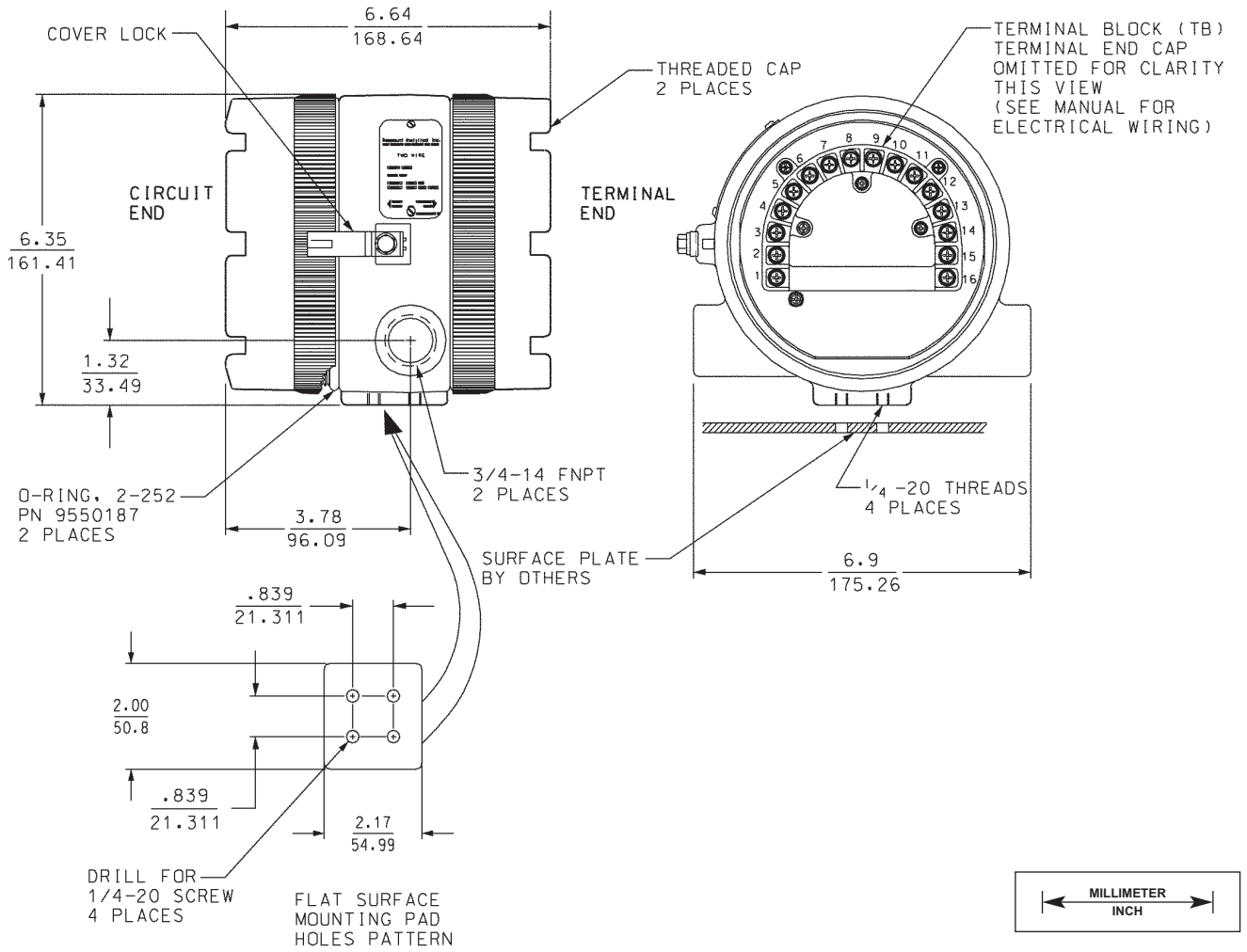


FIGURE 6. Mounting Model 5081-P-FF/FI

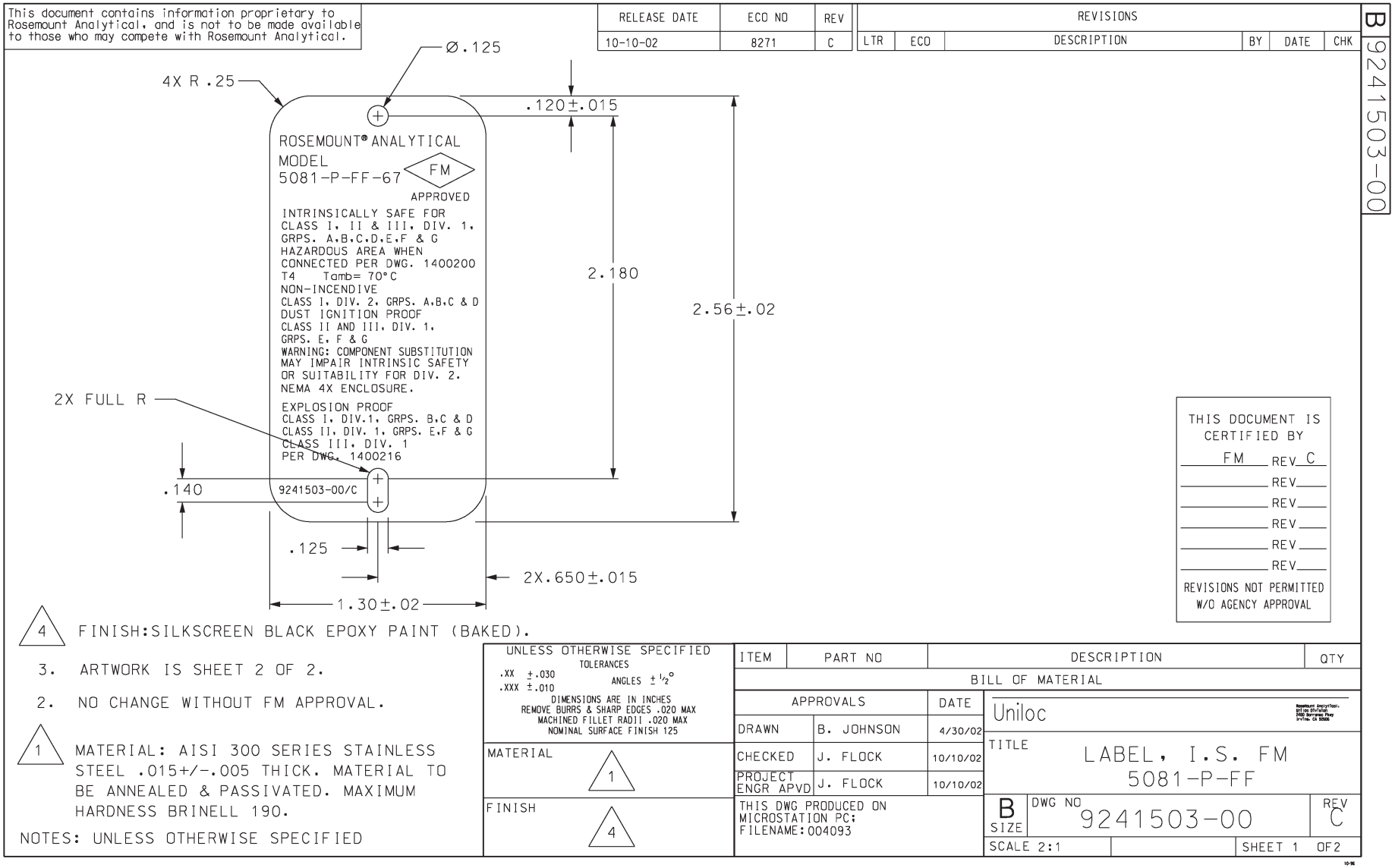


FIGURE 8. FM Intrinsically Safe Installation Label

HAZARDOUS AREA INSTALLATION

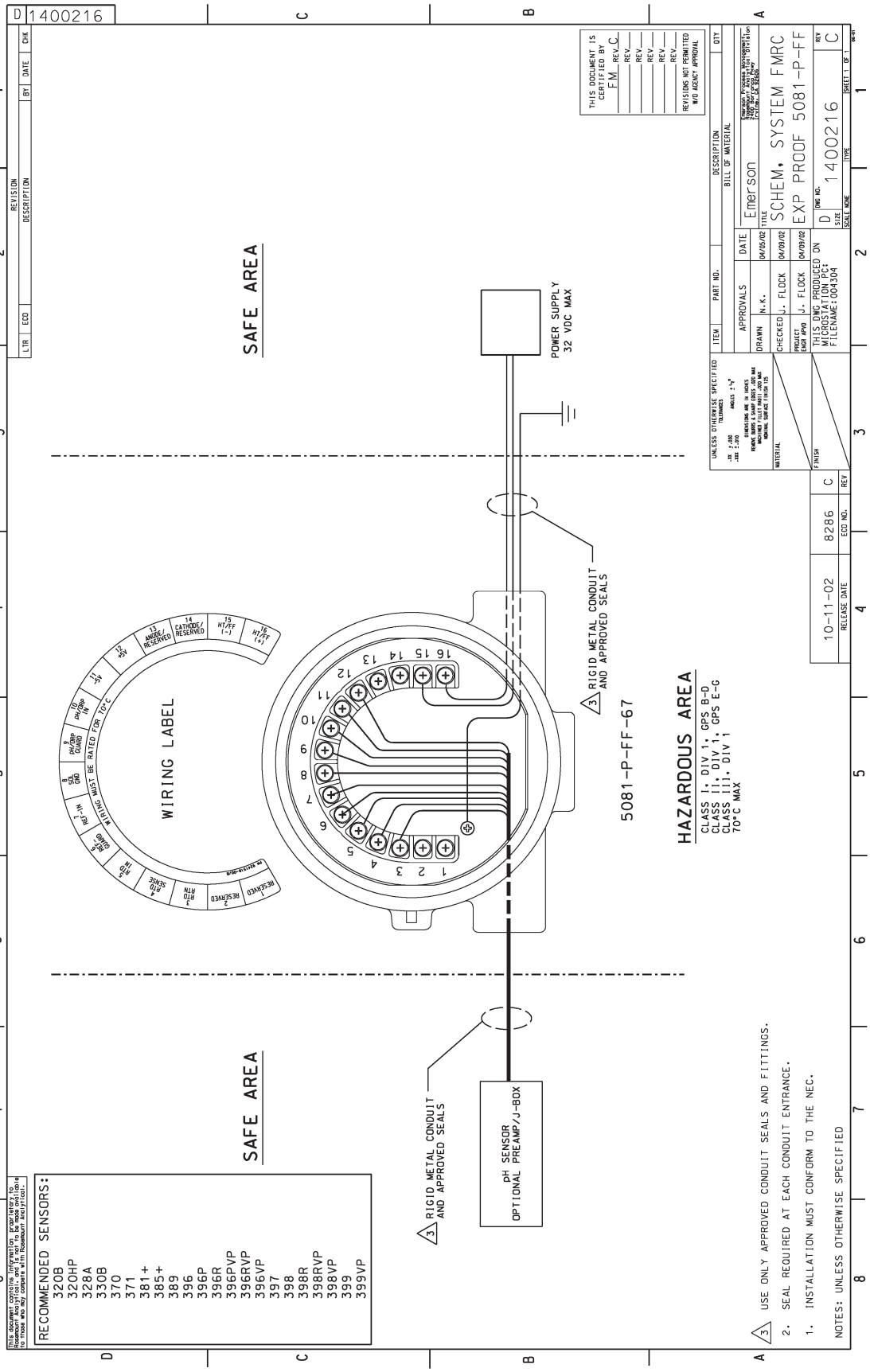


FIGURE 7. FMRC Explosion-Proof Installation

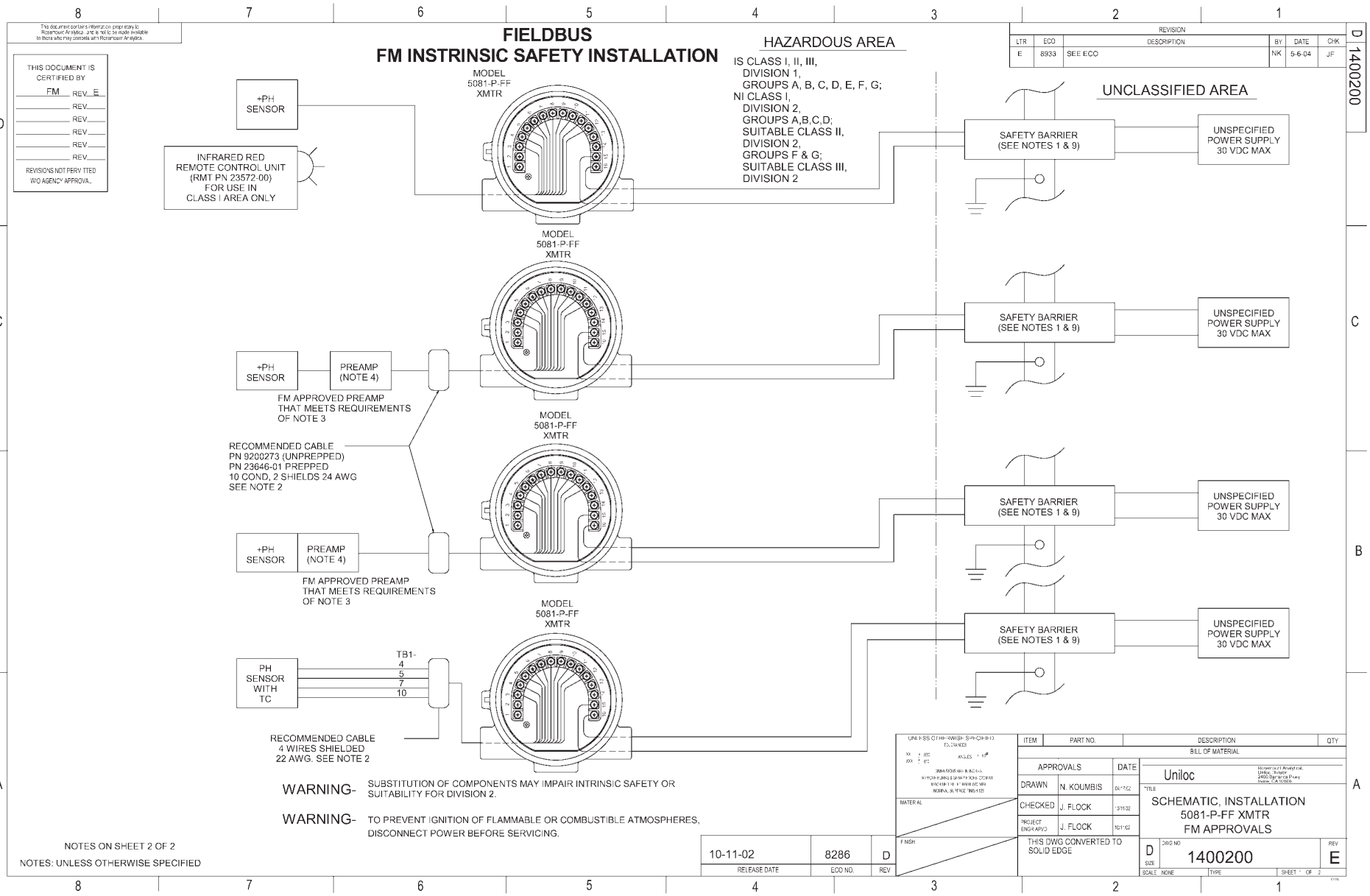

FIELDBUS
FM INSTRINSIC SAFETY INSTALLATION
HAZARDOUS AREA
IS CLASS I, II, III,
DIVISION 1,
GROUPS A, B, C, D, E, F, G;
NI CLASS I,
DIVISION 2,
GROUPS A,B,C,D;
SUITABLE CLASS II,
DIVISION 2,
GROUPS F & G;
SUITABLE CLASS III,
DIVISION 2
UNCLASSIFIED AREA
THIS DOCUMENT IS CERTIFIED BY
FM REV. E
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL
REVISION
LTR ECO DESCRIPTION BY DATE CHK
E 8933 SEE ECO NK 5-6-04 JF
D 1400200
MODEL 5081-P-FF XMTR
+PH SENSOR
INFRARED RED REMOTE CONTROL UNIT (RMT PN 23572-00) FOR USE IN CLASS I AREA ONLY
SAFETY BARRIER (SEE NOTES 1 & 9)
UNSPECIFIED POWER SUPPLY 30 VDC MAX
PREAMP (NOTE 4)
FM APPROVED PREAMP THAT MEETS REQUIREMENTS OF NOTE 3
RECOMMENDED CABLE
PN 9200273 (UNPREPPED)
PN 23646-01 PREPPED
10 COND, 2 SHIELDS 24 AWG
SEE NOTE 2
PH SENSOR WITH TC
TB1-
4
5
7
10
RECOMMENDED CABLE
4 WIRES SHIELDED
22 AWG. SEE NOTE 2
WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.
WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.
NOTES ON SHEET 2 OF 2
NOTES: UNLESS OTHERWISE SPECIFIED
BILL OF MATERIAL
ITEM PART NO. DESCRIPTION QTY
APPROVALS DATE
DRAWN N. KOUMBIS
CHECKED J. FLOCK
PROJECT ENGR APVD J. FLOCK
Uniloc
SCHEMATIC, INSTALLATION
5081-P-FF XMTR
FM APPROVALS
10-11-02 8286 D
RELEASE DATE ECO NO. REV
THIS DWG CONVERTED TO SOLID EDGE
D SIZE 1400200 DWG NO REV E
SCALE NONE TYPE SHEET 1 OF 2

FIGURE 9. FM Intrinsically Safe Installation (1 of 2)

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13. NO REVISION TO DRAWING WITHOUT PRIOR FM APPROVAL.

12. THE ASSOCIATED APPARATUS MUST BE FM APPROVED.

11. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

10. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

9. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE INPUT		ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	$\geq$	Voc, Vt OR Uo;
Imax OR Ii	$\geq$	Isc, It OR Io;
Pmax OR Pi	$\geq$	Po;
Ci+ Ccable;	$\geq$	Ca, Ct OR Co
Li+ Lcable.	$\geq$	La, Lt OR Lo

8. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.

7. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

6. SENSORS WITHOUT PREAMPS SHALL MEET THE REQUIREMENTS OF SIMPLE APPARATUS AS DEFINED IN ANSI/ISA RP12.6 AND THE NEC, ANSI/NFPA 70. THEY CAN NOT GENERATE NOR STORE MORE THAN 1.2V, 0.1A, 25mW, AND 20uJ. SEE TABLES I AND II.

5. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA RP12.06.01 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70).

4. PREAMPLIFIER TYPE 23546-00, 23538-00 OR 23561-00 MAY BE UTILIZED INSTEAD OF THE MODEL 5081-P-FF TRANSMITTER INTEGRAL PREAMPLIFIER CIRCUIRTY. A WEATHER RESISTANT ENCLOSURE MUST HOUSE THE TYPE 23546-00 REMOTE PREAMPLIFIER.

3. INTRINSICALLY SAFE APPARATUS (MODEL 5081-P-FF, FIELDBUS TERMINATOR AND ANY ADDITIONAL FIELDBUS DEVICES) AND ASSOCIATED APPARATUS (SAFETY BARRIER) SHALL MEET THE FOLLOWING REQUIREMENTS: THE VOLTAGE (Vmax) AND CURRENT (Imax) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (Voc OR Vt) AND CURRENT (Isc OR It) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS (SAFETY BARRIER). IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) OF THE INTRINSICALLY SAFE APPARATUS, INCLUDING INTERCONNECTING WIRING, MUST BE EQUAL OR LESS THAN THE CAPACITANCE (Ca) AND INDUCTANCE (La) WHICH CAN BE SAFELY CONNECTED TO THE APPARATUS. (REF. TABLE III).

2. THE MODEL 5081-P-FF TRANSMITTER INCLUDES INTEGRAL PREAMPLIFIER CIRCUITRY. AN EXTERNAL PREAMPLIFIER MAY BE ALSO USED. THE OUTPUT PARAMETERS SPECIFIED IN TABLE II ARE VALID FOR EITHER PREAMPLIFIER.
THE CAPACITANCE AND INDUCTANCE OF THE LOAD CONNECTED TO THE SENSOR TERMINALS MUST NOT EXCEED THE VALUES SPECIFIED IN TABLE I
WHERE Ca $\geq$ Ci (SENSOR) + Ccable;
La $\geq$ Li (SENSOR) + Lcable.

1. ANY SHUNT ZENER DIODE SAFETY BARRIER APPROVED BY FM HAVING THE FOLLOWING OUTPUT PARAMETERS
SUPPLY/SIGNAL TERMINALS TB1-15, 16

Voc OR Vt NOT GREATER THAN 30 V
Isc OR It NOT GREATER THAN 300 mA
Pmax NOT GREATER THAN 0.9 W

NOTES: UNLESS OTHERWISE SPECIFIED

TABLE I

GAS GROUPS	OUTPUT PARAMETERS	
	Ca (uF)	La (mH)
A, B	0.96	3.1
C	5.99	12.3
D	21.69	25

TABLE II

OUTPUT PARAMETERS	MODEL 5081-P-FF TB1-1 THRU 12
Vt	13.02 Vdc
It	105.64 mA
Pt	147 mW

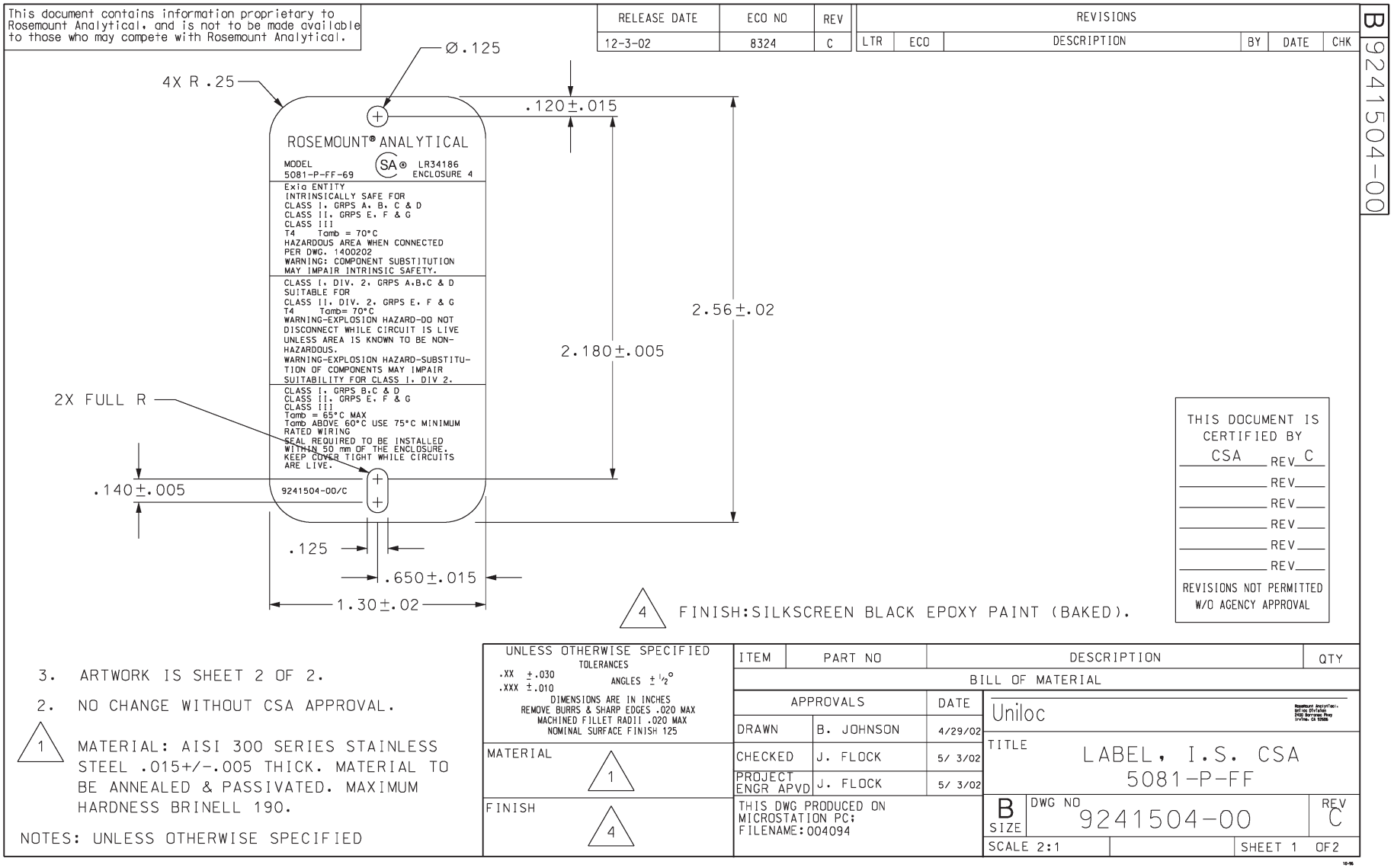
TABLE III

5081-P-FF ENTITY PARAMETERS SUPPLY / SIGNAL TERMINALS TB 1-15, 16					
MODEL NO.	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (nF)	Li (mH)
5081-P-FF	30	300	1.3	27.8	0

D 1400200

SIZE	DWG NO.	REV
D	1400200	E
SCALE: NONE	TYPE	SHEET 2 OF 2

FIGURE 9. FM Intrinsically Safe Installation (2 of 2)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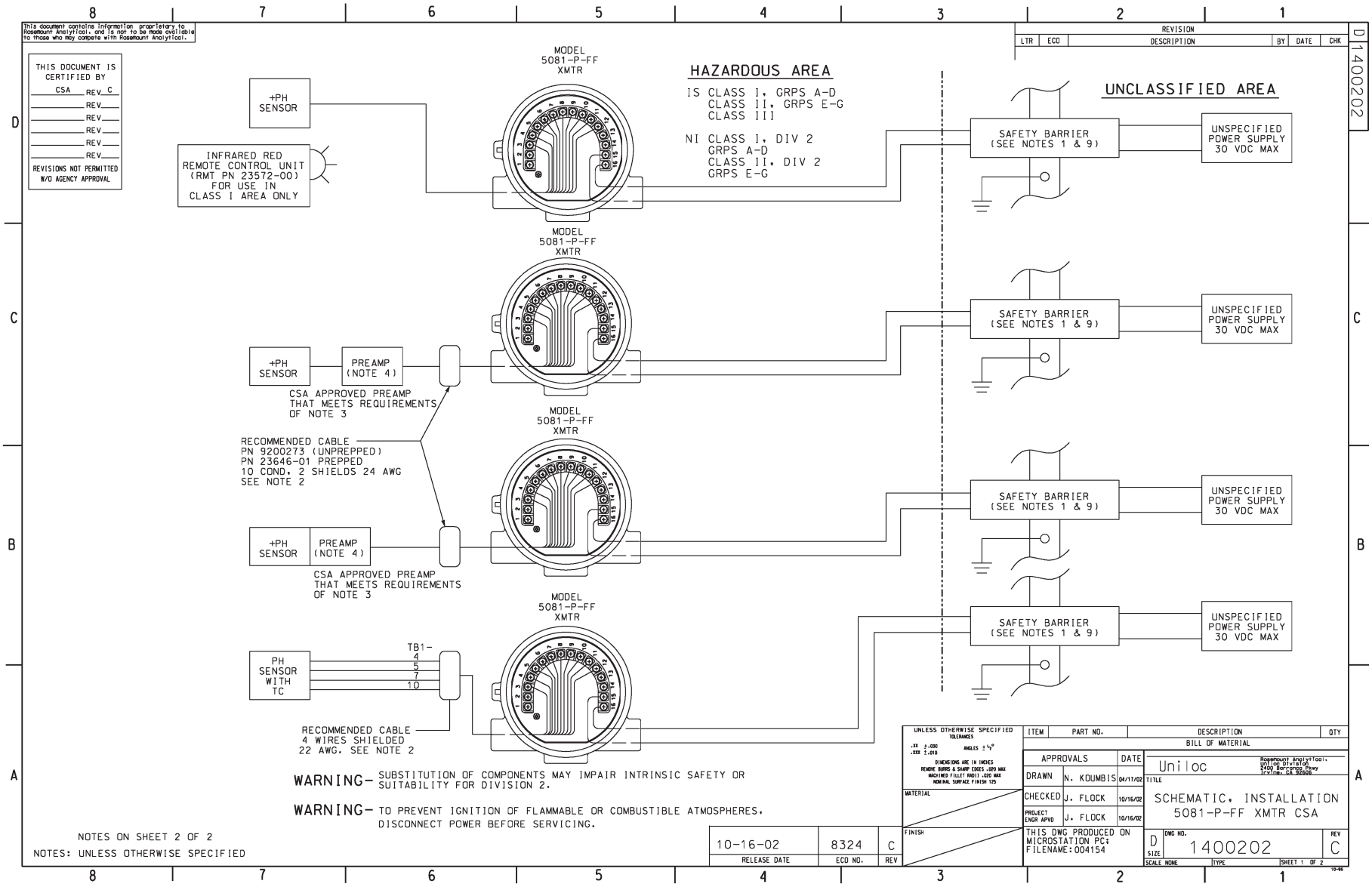
RELEASE DATE 12-3-02
ECO NO 8324
REV C
REVISIONS
LTR ECO DESCRIPTION BY DATE CHK
B 9241504-00
4X R .25
Ø.125
.120±.015
2.56±.02
2.180±.005
2X FULL R
.140±.005
.125
.650±.015
1.30±.02
ROSEMOUNT® ANALYTICAL
MODEL 5081-P-FF-69
SA® LR34186 ENCLOSURE 4
Exia ENTITY
INTRINSICALLY SAFE FOR
CLASS I, GRPS A, B, C & D
CLASS II, GRPS E, F & G
CLASS III
T4 Tamb = 70°C
HAZARDOUS AREA WHEN CONNECTED
PER DWG. 1400202
WARNING: COMPONENT SUBSTITUTION
MAY IMPAIR INTRINSIC SAFETY.
CLASS I, DIV. 2, GRPS A,B,C & D
SUITABLE FOR
CLASS II, DIV. 2, GRPS E, F & G
T4 Tamb= 70°C
WARNING-EXPLOSION HAZARD-DO NOT
DISCONNECT WHILE CIRCUIT IS LIVE
UNLESS AREA IS KNOWN TO BE NON-
HAZARDOUS.
WARNING-EXPLOSION HAZARD-SUBSTITU-
TION OF COMPONENTS MAY IMPAIR
SUITABILITY FOR CLASS I, DIV 2.
CLASS I, GRPS B,C & D
CLASS II, GRPS E, F & G
CLASS III
Tamb = 65°C MAX
Tamb ABOVE 60°C USE 75°C MINIMUM
RATED WIRING
SEAL REQUIRED TO BE INSTALLED
WITHIN 50 mm OF THE ENCLOSURE.
KEEP COVER TIGHT WHILE CIRCUITS
ARE LIVE.
9241504-00/C
THIS DOCUMENT IS CERTIFIED BY CSA REV C
REV
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL
4 FINISH:SILKSCREEN BLACK EPOXY PAINT (BAKED).
3. ARTWORK IS SHEET 2 OF 2.
2. NO CHANGE WITHOUT CSA APPROVAL.
1 MATERIAL: AISI 300 SERIES STAINLESS STEEL .015+/-.005 THICK. MATERIAL TO BE ANNEALED & PASSIVATED. MAXIMUM HARDNESS BRINELL 190.
NOTES: UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
TOLERANCES
.XX ±.030 ANGLES ±½°
.XXX ±.010
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125
MATERIAL 1
FINISH 4
ITEM PART NO DESCRIPTION QTY
BILL OF MATERIAL
APPROVALS DATE
DRAWN B. JOHNSON 4/29/02
CHECKED J. FLOCK 5/ 3/02
PROJECT ENGR APVD J. FLOCK 5/ 3/02
THIS DWG PRODUCED ON MICROSTATION PC; FILENAME: 004094
Uniloc
TITLE LABEL, I.S. CSA 5081-P-FF
B SIZE
DWG NO 9241504-00
REV C
SCALE 2:1
SHEET 1 OF 2

FIGURE 10. CSA Intrinsically Safe Installation Label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CSA REV. C
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL
REVISION
LTR ECO DESCRIPTION BY DATE CHK
D 1400202
HAZARDOUS AREA
IS CLASS I, GRPS A-D
CLASS II, GRPS E-G
CLASS III
NI CLASS I, DIV 2
GRPS A-D
CLASS II, DIV 2
GRPS E-G
UNCLASSIFIED AREA
MODEL 5081-P-FF XMTR
+PH SENSOR
INFRARED RED REMOTE CONTROL UNIT (RMT PN 23572-00) FOR USE IN CLASS I AREA ONLY
SAFETY BARRIER (SEE NOTES 1 & 9)
UNSPECIFIED POWER SUPPLY 30 VDC MAX
PREAMP (NOTE 4)
CSA APPROVED PREAMP THAT MEETS REQUIREMENTS OF NOTE 3
RECOMMENDED CABLE
PN 9200273 (UNPREPPED)
PN 23646-01 PREPPED
10 COND, 2 SHIELDS 24 AWG
SEE NOTE 2
PH SENSOR WITH TC
TB1- 4 5 7 10
RECOMMENDED CABLE 4 WIRES SHIELDED 22 AWG. SEE NOTE 2
WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.
WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.
NOTES ON SHEET 2 OF 2
NOTES: UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED TOLERANCES
ITEM PART NO. DESCRIPTION QTY
BILL OF MATERIAL
APPROVALS DATE
DRAWN N. KOUMBIS 04/17/02
CHECKED J. FLOCK 10/16/02
PROJECT ENGR APVD J. FLOCK 10/16/02
Uniloc
Rosemount Analytical Uniloc Division 2400 Barranca Pkwy Irvine, CA 92606
TITLE
SCHEMATIC, INSTALLATION 5081-P-FF XMTR CSA
THIS DWG PRODUCED ON MICROSTATION PC; FILENAME: 004154
D SIZE
DWG NO. 1400202
REV C
SCALE NONE
TYPE
SHEET 1 OF 2
10-16-02 RELEASE DATE
8324 ECO NO.
C REV

FIGURE 11. CSA Intrinsically Safe Installation (1 of 2)

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D 1400202

13. NO REVISION TO DRAWING WITHOUT PRIOR CSA APPROVAL.

12. THE ASSOCIATED APPARATUS MUST BE CSA APPROVED.

11. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

10. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

9. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE INPUT		ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	≥	Voc, Vt OR Uo:
Imax OR Ii	≥	Isc, It OR Io:
Pmax OR Pi	≥	Po:
Ci + Ccable:	≥	Ca, Ct OR Co
Li + Lcable.	≥	La, Lt OR Lo

8. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.

7. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

6. SENSORS WITHOUT PREAMPS SHALL MEET THE REQUIREMENTS OF SIMPLE APPARATUS AS DEFINED IN ANSI/ISA RP12.6 AND THE CEC (CSA C22.1). THEY CAN NOT GENERATE NOR STORE MORE THAN 1.2V, 0.1A, 25mW, AND 20uJ. SEE TABLES I AND II.

5. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA RP12.06.01 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE CANADIAN ELECTRICAL CODE (CSA C22.1).

4. PREAMPLIFIER TYPE 23546-00, 23538-00 OR 23561-00 MAY BE UTILIZED INSTEAD OF THE MODEL 5081-P-FF TRANSMITTER INTEGRAL PREAMPLIFIER CIRCUIRTY. A WEATHER RESISTANT ENCLOSURE MUST HOUSE THE TYPE 23546-00 REMOTE PREAMPLIFIER.

3. INTRINSICALLY SAFE APPARATUS (MODEL 5081-P-FF, FIELDBUS TERMINATOR AND ANY ADDITIONAL FIELDBUS DEVICES) AND ASSOCIATED APPARATUS (SAFETY BARRIER) SHALL MEET THE FOLLOWING REQUIREMENTS: THE VOLTAGE (Vmax) AND CURRENT (Imax) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (Voc OR Vt) AND CURRENT (Isc OR It) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS (SAFETY BARRIER). IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) OF THE INTRINSICALLY SAFE APPARATUS, INCLUDING INTERCONNECTING WIRING, MUST BE EQUAL OR LESS THAN THE CAPACITANCE (Ca) AND INDUCTANCE (La) WHICH CAN BE SAFELY CONNECTED TO THE APPARATUS. (REF. TABLE III).

2. THE MODEL 5081-P-FF TRANSMITTER INCLUDES INTEGRAL PREAMPLIFIER CIRCUITRY. AN EXTERNAL PREAMPLIFIER MAY BE ALSO USED. THE OUTPUT PARAMETERS SPECIFIED IN TABLE II ARE VALID FOR EITHER PREAMPLIFIER.

THE CAPACITANCE AND INDUCTANCE OF THE LOAD CONNECTED TO THE SENSOR TERMINALS MUST NOT EXCEED THE VALUES SPECIFIED IN TABLE I

WHERE Ca ≥ Ci (SENSOR) + Ccable:
Ca ≥ Li (SENSOR) + Lcable.

1. ANY SHUNT ZENER DIODE SAFETY BARRIER APPROVED BY CSA HAVING THE FOLLOWING OUTPUT PARAMETERS
SUPPLY/SIGNAL TERMINALS TB1-15, 16

Voc OR Vt NOT GREATER THAN 30 V
Isc OR It NOT GREATER THAN 300 mA
Pmax NOT GREATER THAN 0.9 W

NOTES: UNLESS OTHERWISE SPECIFIED

TABLE I

GAS GROUPS	OUTPUT PARAMETERS	
	Ca (uF)	La (mH)
A, B	0.96	3.1
C	5.99	12.3
D	21.69	25

TABLE II

OUTPUT PARAMETERS	MODEL 5081-P-FF TB1-1 THRU 12
Vt	13.02 Vdc
It	105.64 mA
Pt	147 mW

TABLE III

5081-P-FF ENTITY PARAMETERS SUPPLY / SIGNAL TERMINALS TB 1-15, 16					
MODEL NO.	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (nF)	Li (mH)
5081-P-FF	30	300	1.3	27.8	0

D SIZE	DWG NO. 1400202	REV C
SCALE: NONE	TYPE	SHEET 2 OF 2

FIGURE 11. CSA Intrinsically Safe Installation (2 of 2)

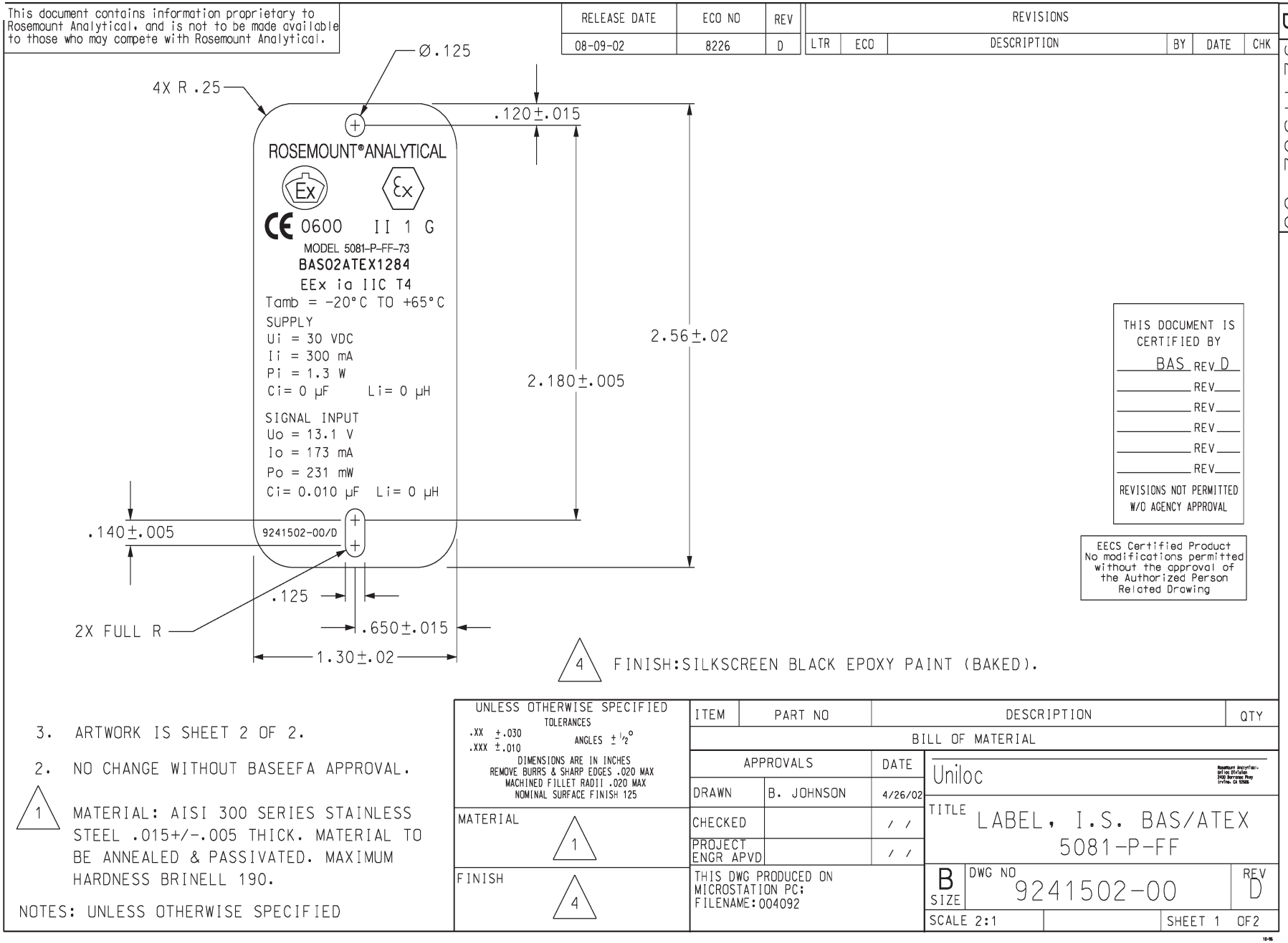
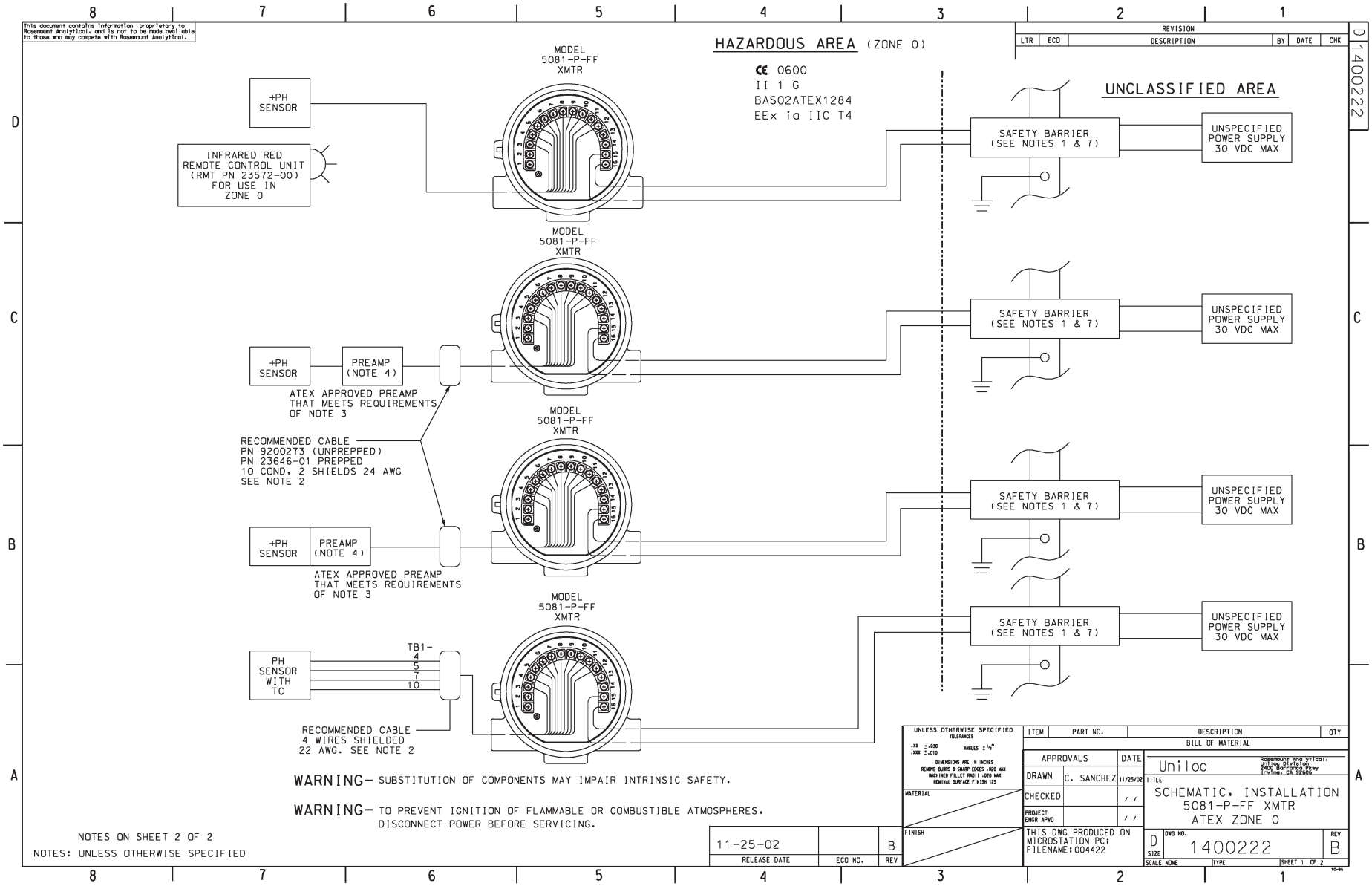


FIGURE 12. ATEX Intrinsically Safe Installation Label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HAZARDOUS AREA (ZONE 0)
CE 0600
II 1 G
BAS02ATEX1284
EEx ia IIC T4
UNCLASSIFIED AREA
MODEL 5081-P-FF XMTR
+PH SENSOR
INFRARED RED REMOTE CONTROL UNIT (RMT PN 23572-00) FOR USE IN ZONE 0
PREAMP (NOTE 4)
ATEX APPROVED PREAMP THAT MEETS REQUIREMENTS OF NOTE 3
RECOMMENDED CABLE
PN 9200273 (UNPREPPED)
PN 23646-01 PREPPED
10 COND. 2 SHIELDS 24 AWG
SEE NOTE 2
PH SENSOR WITH TC
TB1- 4 5 7 10
RECOMMENDED CABLE 4 WIRES SHIELDED 22 AWG. SEE NOTE 2
SAFETY BARRIER (SEE NOTES 1 & 7)
UNSPECIFIED POWER SUPPLY 30 VDC MAX
WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES. DISCONNECT POWER BEFORE SERVICING.
NOTES ON SHEET 2 OF 2
NOTES: UNLESS OTHERWISE SPECIFIED
REVISION
LTR ECO DESCRIPTION BY DATE CHK
D1400222
ITEM PART NO. DESCRIPTION QTY
BILL OF MATERIAL
APPROVALS DATE
DRAWN C. SANCHEZ 11/25/02
CHECKED
PROJECT ENGR APVD
Uniloc
Rosemount Analytical Uniloc Division
2400 Barranca Pkwy Irvine, CA 92606
TITLE
SCHEMATIC, INSTALLATION
5081-P-FF XMTR
ATEX ZONE 0
THIS DWG PRODUCED ON MICROSTATION PC; FILENAME:004422
D SIZE
DWG NO. 1400222
REV B
SCALE NONE
TYPE
SHEET 1 OF 2
11-25-02 RELEASE DATE
ECO NO.
REV B

FIGURE 13. ATEX Intrinsically Safe Installation (1 of 2)

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11. PROCESS RESISTIVITY MUST BE LESS THAN 10^9 OHMS.

10. THE ASSOCIATED APPARATUS MUST BE ATEX APPROVED.

9. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

8. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

7. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE INPUT		ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	≥	Voc, Vt OR Uo;
Imax OR Ii	≥	Isc, It OR Io;
Pmax OR Pi	≥	Po;
Ci + Ccable;	≥	Ca, Ct OR Co
Li + Lcable.	≥	La, Lt OR Lo

6. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.

5. SENSORS WITHOUT PREAMPS SHALL MEET THE REQUIREMENTS OF SIMPLE APPARATUS AS DEFINED IN ANSI/ISA RP12.6 AND THE NEC, ANSI/NFPA 70. THEY CAN NOT GENERATE NOR STORE MORE THAN 1.2V, 0.1A, 25mW, AND 20uJ. SEE TABLES I AND II.

4. PREAMPLIFIER TYPE 23546-00, 23538-00 OR 23561-00 MAY BE UTILIZED INSTEAD OF THE MODEL 5081-P-FF TRANSMITTER INTEGRAL PREAMPLIFIER CIRCUIRTY. A WEATHER RESISTANT ENCLOSURE MUST HOUSE THE TYPE 23546-00 REMOTE PREAMPLIFIER.

3. INTRINSICALLY SAFE APPARATUS (MODEL 5081-P-FF, FIELDBUS TERMINATOR AND ANY ADDITIONAL FIELDBUS DEVICES) AND ASSOCIATED APPARATUS (SAFETY BARRIER) SHALL MEET THE FOLLOWING REQUIREMENTS: THE VOLTAGE (Vmax) AND CURRENT (Imax) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (Voc OR Vt) AND CURRENT (Isc OR It) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS (SAFETY BARRIER). IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) OF THE INTRINSICALLY SAFE APPARATUS, INCLUDING INTERCONNECTING WIRING, MUST BE EQUAL OR LESS THAN THE CAPACITANCE (Ca) AND INDUCTANCE (La) WHICH CAN BE SAFELY CONNECTED TO THE APPARATUS. (REF. TABLE III).

2. THE MODEL 5081-P-FF TRANSMITTER INCLUDES INTEGRAL PREAMPLIFIER CIRCUITRY. AN EXTERNAL PREAMPLIFIER MAY BE ALSO USED. THE OUTPUT PARAMETERS SPECIFIED IN TABLE II ARE VALID FOR EITHER PREAMPLIFIER.

   THE CAPACITANCE AND INDUCTANCE OF THE LOAD CONNECTED TO THE SENSOR TERMINALS MUST NOT EXCEED THE VALUES SPECIFIED IN TABLE I

   WHERE Ca ≥ Ci (SENSOR) + Ccable;
   La ≥ Li (SENSOR) + Lcable.

1. ANY SHUNT ZENER DIODE SAFETY BARRIER HAVING ATEX APPROVAL AND HAVING THE FOLLOWING OUTPUT PARAMETERS
   SUPPLY/SIGNAL TERMINALS TB1 15 AND 16

   Voc OR Vt NOT GREATER THAN 30 V
   Isc OR It NOT GREATER THAN 300 mA
   Pmax NOT GREATER THAN 0.9 W

NOTES: UNLESS OTHERWISE SPECIFIED

TABLE I

GAS GROUPS	OUTPUT PARAMETERS	
	Ca (uF)	La (mH)
IIC	0.96	3.1
IIB	5.99	12.3
IIA	21.69	25

TABLE II

OUTPUT PARAMETERS	MODEL 5081-P-FF TB1-1 THRU 12
Vt	13.1 Vdc
It	173 mA
Pt	231 mW
Ci	.01 uF
Li	0 uF

TABLE III

5081-P-FF ENTITY PARAMETERS SUPPLY / SIGNAL TERMINALS TB1 15 AND 16					
MODEL NO.	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (uF)	Li (uH)
5081-P-FF	30	300	1.3	0	0

D 1400222

SIZE	DWG NO.	REV
D	1400222	B
SCALE: NONE	TYPE	SHEET 2 OF 2

FIGURE 14. ATEX Intrinsically Safe Installation (2 of 2)

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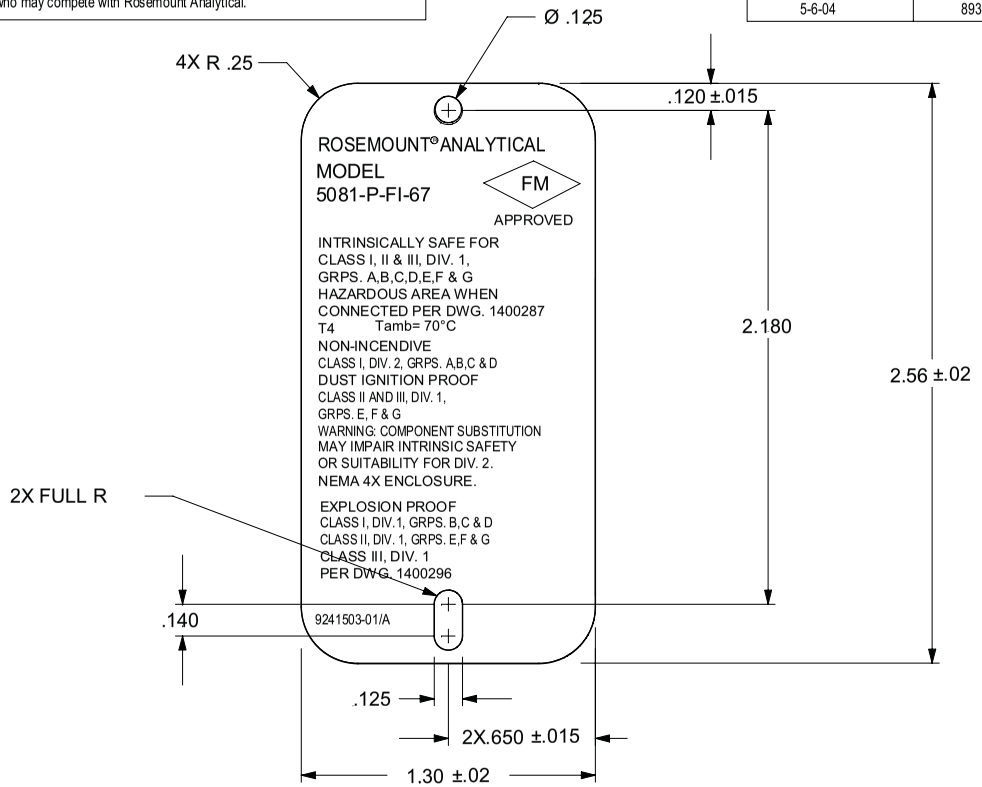
to those who may compete with Rosemount Analytical.

RELEASE DATE	ECO NO	REV
5-6-04	8933	A

REVISIONS					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

B 9241503-01



THIS DOCUMENT IS CERTIFIED BY

FM REV A

REV

REV

REV

REV

REV

REV

REVISIONS NOT PERMITTED W/O AGENCY APPROVAL

4 FINISH:SILKSCREEN BLACK EPOXY PAINT (BAKED).

3. ARTWORK IS SHEET 2 OF 2.

2. NO CHANGE WITHOUT FM APPROVAL.

1 MATERIAL: AISI 300 SERIES STAINLESS STEEL .015+/-.005 THICK. MATERIAL TO BE ANNEALED & PASSIVATED. MAXIMUM HARDNESS BRINELL 190.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
TOLERANCES
.XX ± .030
.XXX ± .010
ANGLES ± 1/2°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125

MATERIAL 1

FINISH 4

ITEM	PART NO	DESCRIPTION	QTY
BILL OF MATERIAL			

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

THIS DWG CREATED IN SOLID EDGE

UniTOC

TITLE
LABEL, I.S. FM
5081-P-FI

SIZE	DWG NO	REV
B	9241503-01	A

SCALE 2:1 SHEET 1 OF 2

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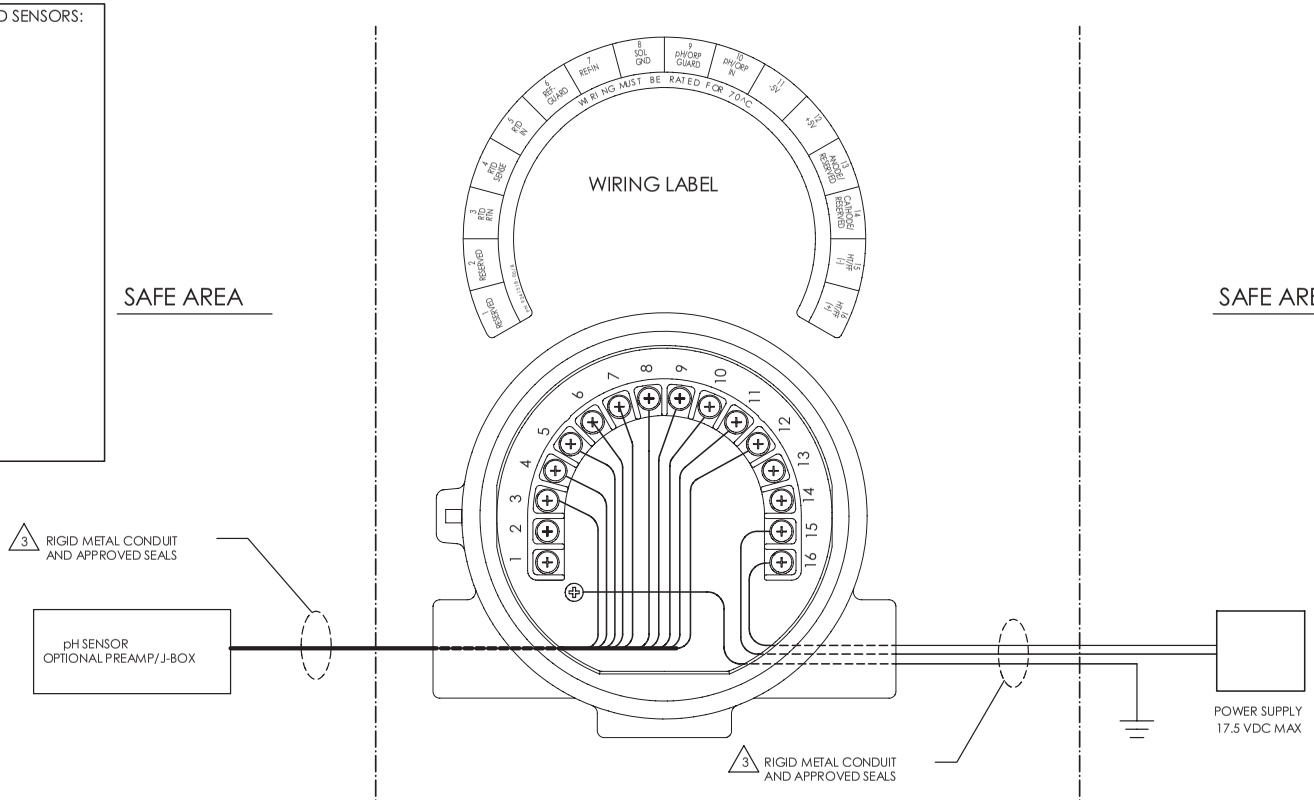
REVISION					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

D 1400296

RECOMMENDED SENSORS:
- 320B
- 320HP
- 328A
- 330B
- 370
- 371
- 381+
- 385+
- 389
- 396
- 396P
- 396R
- 396PVP
- 396RVP
- 396VP
- 397
- 398
- 398R
- 398RVP
- 398VP
- 399
- 399VP


SAFE AREA
WIRING LABEL
WIRING MUST BE RATED FOR 70°C
SAFE AREA
3 RIGID METAL CONDUIT AND APPROVED SEALS
pH SENSOR OPTIONAL PREAMP/J-BOX
POWER SUPPLY 17.5 VDC MAX
3 RIGID METAL CONDUIT AND APPROVED SEALS
5081-P-FI-67
HAZARDOUS AREA
CLASS I, DIV 1, GPS B-D
CLASS II, DIV 1, GPS E-G
CLASS III, DIV 1
70°C MAX

THIS DOCUMENT IS CERTIFIED BY FM REV A
REV ____
REV ____
REV ____
REV ____
REV ____
REV ____
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL

3 USE ONLY APPROVED CONDUIT SEALS AND FITTINGS.

2. SEAL REQUIRED AT EACH CONDUIT ENTRANCE.

1. INSTALLATION MUST CONFORM TO THE NEC.

NOTES: UNLESS OTHERWISE SPECIFIED

RELEASE DATE	ECO NO.	REV
5-6-04	8933	A

UNLESS OTHERWISE SPECIFIED TOLERANCES
.XX ± .030 XXX ± .010 ANGLES ± °
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125
MATERIAL
FINISH
THIS DWG CREATED IN SOLID EDGE

ITEM	PART NO.	DESCRIPTION	QTY

BILL OF MATERIAL

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

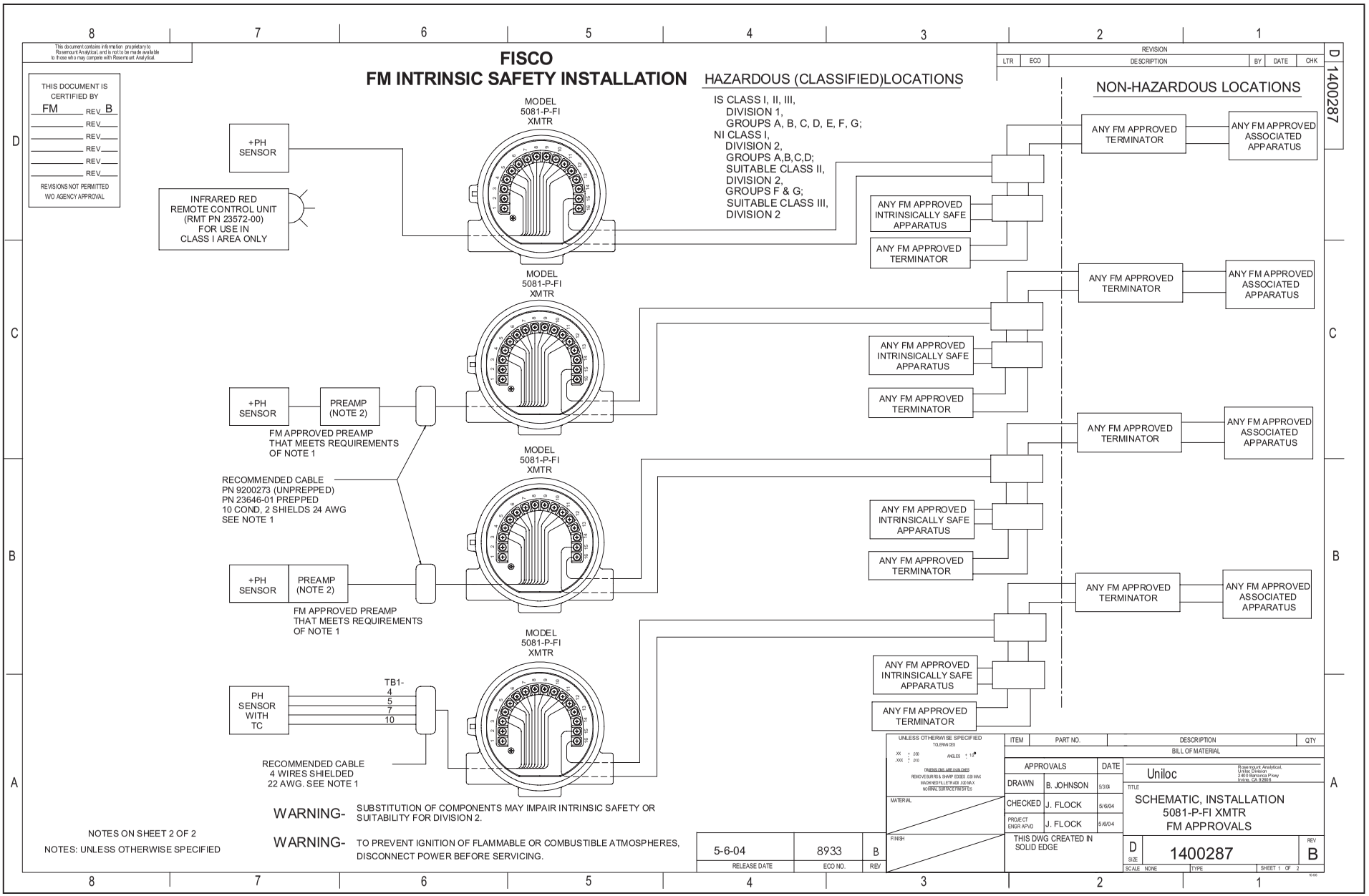
Emerson — Emerson Process Management, Rosemount Analytical Division, 2400 Barranca Pkwy, Irvine, CA 92606

TITLE: SCHEM, SYSTEM FMRC EXP PROOF 5081-P-FI

SIZE D | DWG NO. 1400296 | REV A

SCALE NONE | TYPE | SHEET 1 OF 1

04-01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FM REV. B
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL
FISCO
FM INTRINSIC SAFETY INSTALLATION
HAZARDOUS (CLASSIFIED)LOCATIONS
IS CLASS I, II, III, DIVISION 1, GROUPS A, B, C, D, E, F, G; NI CLASS I, DIVISION 2, GROUPS A,B,C,D; SUITABLE CLASS II, DIVISION 2, GROUPS F & G; SUITABLE CLASS III, DIVISION 2
NON-HAZARDOUS LOCATIONS
REVISION
LTR ECO DESCRIPTION BY DATE CHK
1400287
MODEL 5081-P-FI XMTR
+PH SENSOR
INFRARED RED REMOTE CONTROL UNIT (RMT PN 23572-00) FOR USE IN CLASS I AREA ONLY
PREAMP (NOTE 2)
FM APPROVED PREAMP THAT MEETS REQUIREMENTS OF NOTE 1
RECOMMENDED CABLE PN 9200273 (UNPREPPED) PN 23646-01 PREPPED 10 COND, 2 SHIELDS 24 AWG SEE NOTE 1
PH SENSOR WITH TC
TB1- 4 5 7 10
RECOMMENDED CABLE 4 WIRES SHIELDED 22 AWG. SEE NOTE 1
ANY FM APPROVED INTRINSICALLY SAFE APPARATUS
ANY FM APPROVED TERMINATOR
ANY FM APPROVED ASSOCIATED APPARATUS
WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.
WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.
NOTES ON SHEET 2 OF 2
NOTES: UNLESS OTHERWISE SPECIFIED
5-6-04 RELEASE DATE
8933 ECO NO.
B REV
UNLESS OTHERWISE SPECIFIED TOLERANCES
MATERIAL
FINISH
ITEM PART NO. DESCRIPTION QTY
BILL OF MATERIAL
APPROVALS DATE
DRAWN B. JOHNSON 5/3/04
CHECKED J. FLOCK 5/6/04
PROJECT ENGR APVD J. FLOCK 5/6/04
THIS DWG CREATED IN SOLID EDGE
Uniloc
Rosemount Analytical Uniloc Division 2400 Barranca Pkwy Irvine, CA 92614
TITLE
SCHEMATIC, INSTALLATION 5081-P-FI XMTR FM APPROVALS
D SIZE 1400287 REV B
SCALE NONE TYPE SHEET 1 OF 2

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11. NO REVISION TO DRAWING WITHOUT PRIOR FACTORY MUTUAL RESEARCH APPROVAL.

10. THE CONFIGURATION OF ASSOCIATED APPARATUS MUST BE FACTORY MUTUAL RESEARCH APPROVED UNDER THE ASSOCIATED CONCEPT.

9. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

8. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

7. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE INPUT		ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	≥	Voc, Vt OR Uo;
Imax OR Ii	≥	Isc, It OR Io;
Pmax OR Pi	≥	Po;
3Ci+ 3Ccable;	≥	Ca, Ct OR Co
3Li+ 3Lcable.	≥	La, Lt OR Lo; OR Lc/Rc ≤ (La/Ra OR Lo/Ro) AND Li/Ri ≤ (La/Ra OR Lo/Ro)

6. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.

5. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

4. SENSORS WITHOUT PREAMPS SHALL MEET THE REQUIREMENTS OF SIMPLE APPARATUS AS DEFINED IN ANSI/ISA RP12.6 AND THE NEC, ANSI/NFPA 70. THEY CAN NOT GENERATE NOR STORE MORE THAN 1.5V, 0.1A OR A PASSIVE COMPONENT THAT DOES NOT DISSIPATE MORE THAN 1.3W. SEE TABLES I AND II.

3. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA RP12.06 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" (EXCEPT CHAPTER 5 FOR FISCO INSTALLATIONS) AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) SECTIONS 504 AND 505.

2. PREAMPLIFIER TYPE 23546-00, 23538-00 OR 23561-00 MAY BE UTILIZED INSTEAD OF THE MODEL 5081-P-FI TRANSMITTER INTEGRAL PREAMPLIFIER CIRCUIRTY. A WEATHER RESISTANT ENCLOSURE MUST HOUSE THE TYPE 23546-00 REMOTE PREAMPLIFIER.

1. THE MODEL 5081-P-FI TRANSMITTER INCLUDES INTEGRAL PREAMPLIFIER CIRCUITRY. AN EXTERNAL PREAMPLIFIER MAY BE ALSO USED. THE OUTPUT PARAMETERS SPECIFIED IN TABLE II ARE VALID FOR EITHER PREAMPLIFIER.

THE CAPACITANCE AND INDUCTANCE OF THE LOAD CONNECTED TO THE SENSOR TERMINALS MUST NOT EXCEED THE VALUES SPECIFIED IN TABLE I

WHERE Ca ≥ Ci (SENSOR) + Ccable;
La ≥ Li (SENSOR) + Lcable.

NOTES: UNLESS OTHERWISE SPECIFIED

TABLE I

GAS GROUPS	OUTPUT PARAMETERS	
	Ca (uF)	La (mH)
A, B	0.96	3.1
C	5.99	12.3
D	21.69	25

TABLE II

OUTPUT PARAMETERS	MODEL 5081-P-FI TB1-1 THRU 12
Vt	13.02 Vdc
It	105.64 mA
Pt	147 mW

TABLE III

5081-P-FI FISCO PARAMETERS
SUPPLY / SIGNAL TERMINALS TB 1-15, 16

MODEL NO.	GROUPS	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (nF)	Li (uH)
5081-P-FI	IIB/ C,D,E,F,G	17.5	380	5.32	5	10
5081-P-FI	IIC/ A,B,C,D,E,F,G	17.5	360	2.52	5	10

SIZE	DWG NO.	REV
D	1400287	B
SCALE: NONE	TYPE	SHEET 2 OF 2

09-94

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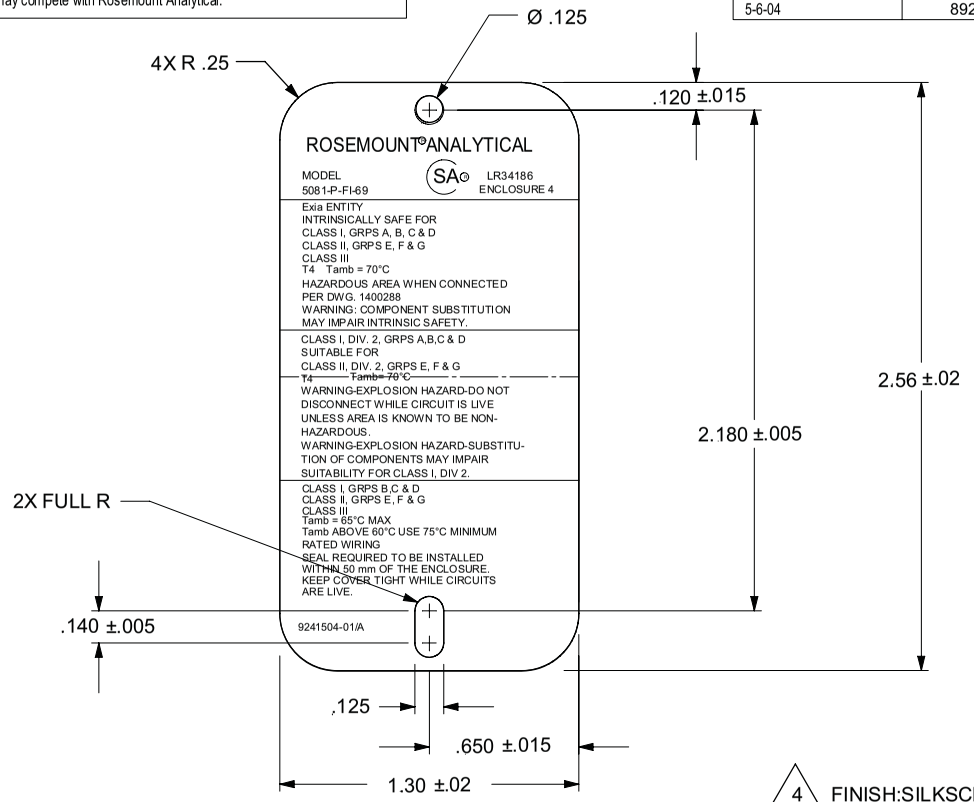
to those who may compete with Rosemount Analytical.

RELEASE DATE	ECO NO	REV
5-6-04	8925	A

REVISIONS					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

B 9241504-01



4 FINISH:SILKSCREEN BLACK EPOXY PAINT (BAKED).

THIS DOCUMENT IS CERTIFIED BY
CSA REV A
REV
REV
REV
REV
REV
REV
REVISIONS NOT PERMITTED
W/O AGENCY APPROVAL

3. ARTWORK IS SHEET 2 OF 2.
2. NO CHANGE WITHOUT CSA APPROVAL.
1. MATERIAL: AISI 300 SERIES STAINLESS STEEL .015+/-.005 THICK. MATERIAL TO BE ANNEALED & PASSIVATED. MAXIMUM HARDNESS BRINELL 190.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
TOLERANCES
.XX ± .030
.XXX ± .010
ANGLES ± 1/2°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125

MATERIAL 1
FINISH 4

ITEM	PART NO	DESCRIPTION	QTY

BILL OF MATERIAL

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

THIS DWG CREATED IN SOLID EDGE

Uniloc
Rosemount Analytical, Uniloc Division, 2400 Barranca Pkwy, Irvine, CA 92606

TITLE
LABEL, I.S. CSA
5081-P-FI

SIZE	DWG NO	REV
B	9241504-01	A

SCALE 2:1 SHEET 1 OF 2

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REVISION					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

D1400288

FISCO
CSA INTRINSIC SAFETY INSTALLATION

THIS DOCUMENT IS CERTIFIED BY
CSA ____ REV A
____ REV ____
____ REV ____
____ REV ____
____ REV ____
____ REV ____
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL

+PH SENSOR

INFRARED RED REMOTE CONTROL UNIT (RMT PN 23572-00) FOR USE IN CLASS I AREA ONLY

MODEL 5081-P-FI XMTR

HAZARDOUS AREA

IS CLASS I, GRPS A-D
CLASS II, GRPS E-G
CLASS III

NI CLASS I, DIV 2
GRPS A-D
CLASS II, DIV 2
GRPS E-G

UNCLASSIFIED AREA

CSA APPROVED ASSOCIATED APPARATUS SUITABLE FOR FISCO SEE NOTE 8 AND TABLE III

UNSPECIFIED POWER SUPPLY 17.5 VDC MAX

MODEL 5081-P-FI XMTR

+PH SENSOR

PREAMP (NOTE 3)

CSA APPROVED PREAMP THAT MEETS REQUIREMENTS OF NOTE 2

RECOMMENDED CABLE
PN 9200273 (UNPREPPED)
PN 23646-01 PREPPED
10 COND, 2 SHIELDS 24 AWG
SEE NOTE 1

MODEL 5081-P-FI XMTR

+PH SENSOR

PREAMP (NOTE 3)

CSA APPROVED PREAMP THAT MEETS REQUIREMENTS OF NOTE 2

MODEL 5081-P-FI XMTR

PH SENSOR WITH TC

TB1-
4
5
7
10

RECOMMENDED CABLE
4 WIRES SHIELDED
22 AWG. SEE NOTE 1

WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.

WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

NOTES ON SHEET 2 OF 2

NOTES: UNLESS OTHERWISE SPECIFICED

5-6-04	8925	A
RELEASE DATE	ECO NO.	REV

UNLESS OTHERWISE SPECIFIED TOLERANCES
XX ± .030 ANGLES ±
XXX ± .010
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125
MATERIAL
FINISH

ITEM	PART NO.	DESCRIPTION	QTY
BILL OF MATERIAL			

APPROVALS		DATE
DRAWN	B. JOHNSON	5-3-04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

THIS DWG CREATED IN SOLID EDGE

Uniloc — Rosemount Analytical - Uniloc Division, 2400 Barranca Pkwy, Irvine, CA 92606

TITLE: SCHEMATIC, INSTALLATION 5081-P-FI XMTR CSA

SIZE D | DWG NO. 1400288 | REV A

SCALE NONE | TYPE | SHEET 1 OF 2

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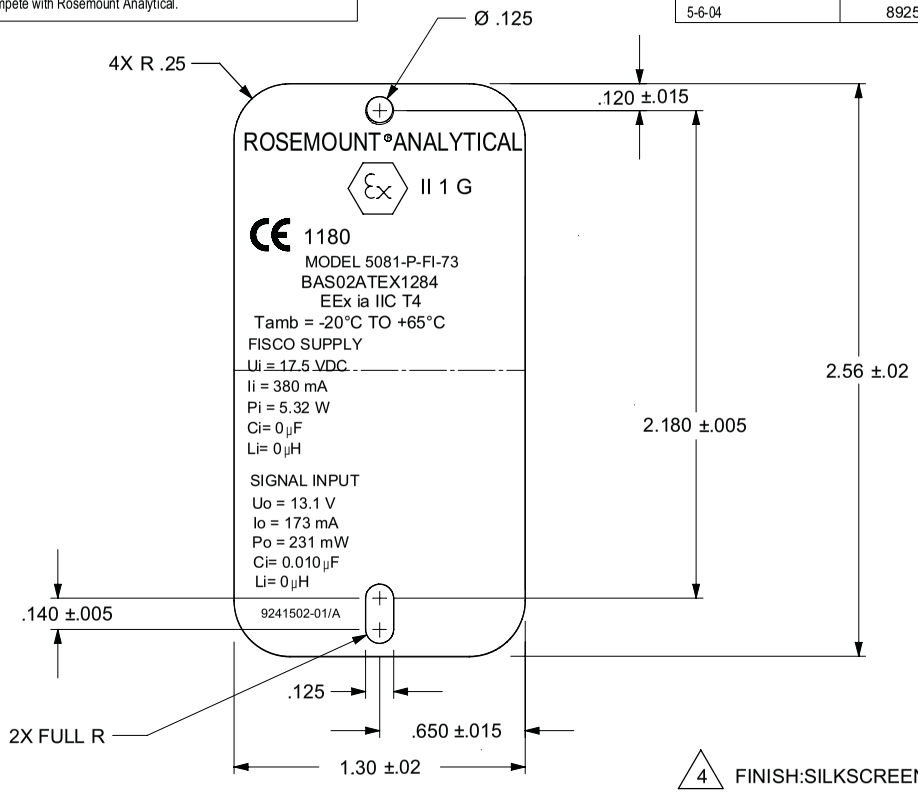
RELEASE DATE	ECO NO	REV
5-6-04	8925	A

REVISIONS					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

B 9241502-01



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Related Drawing

4 FINISH:SILKSCREEN BLACK EPOXY PAINT (BAKED).

3. ARTWORK IS SHEET 2 OF 2.
2. NO CHANGE WITHOUT BASEEFA APPROVAL.
1 MATERIAL: AISI 300 SERIES STAINLESS STEEL .015+/-.005 THICK. MATERIAL TO BE ANNEALED & PASSIVATED. MAXIMUM HARDNESS BRINELL 190.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
TOLERANCES
.XX ± .030
.XXX ± .010
ANGLES ± 1/2°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125

MATERIAL 1
FINISH 4

THIS DWG CREATED IN SOLID EDGE

ITEM	PART NO	DESCRIPTION	QTY
BILL OF MATERIAL			

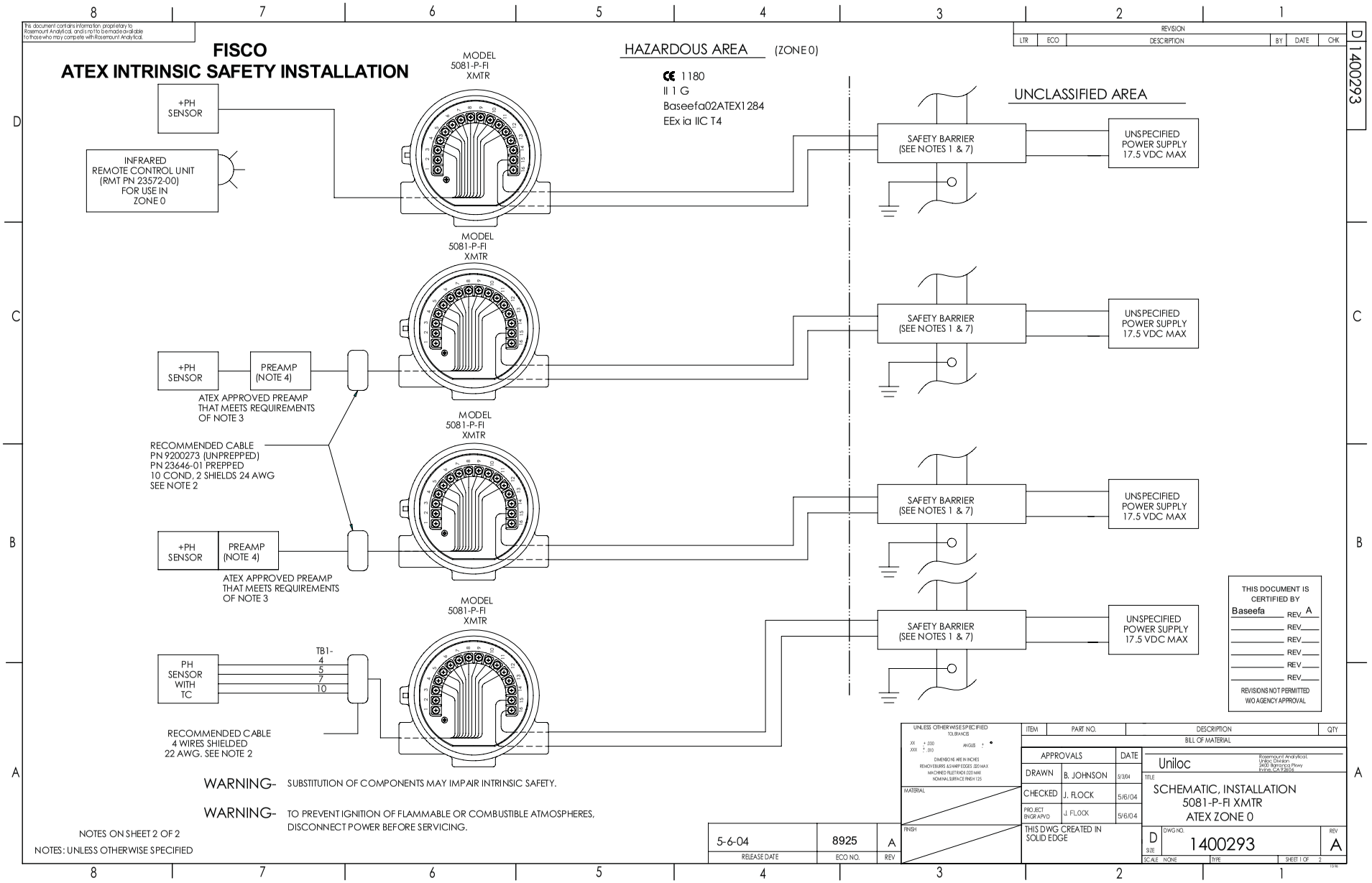
APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

Uniloc

TITLE LABEL, I.S. BAS/ATEX 5081-P-FI

B SIZE | DWG NO 9241502-01 | REV A

SCALE 2:1 | SHEET 1 OF 2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REVISION
LTR ECO DESCRIPTION BY DATE CHK
D1400293
FISCO
ATEX INTRINSIC SAFETY INSTALLATION
HAZARDOUS AREA (ZONE 0)
CE 1180
II 1 G
Baseefa02ATEX1284
EEx ia IIC T4
UNCLASSIFIED AREA
MODEL 5081-P-FI XMTR
+PH SENSOR
INFRARED REMOTE CONTROL UNIT (RMT PN 23572-00) FOR USE IN ZONE 0
SAFETY BARRIER (SEE NOTES 1 & 7)
UNSPECIFIED POWER SUPPLY 17.5 VDC MAX
+PH SENSOR
PREAMP (NOTE 4)
ATEX APPROVED PREAMP THAT MEETS REQUIREMENTS OF NOTE 3
RECOMMENDED CABLE
PN 9200273 (UNPREPPED)
PN 23646-01 PREPPED
10 COND, 2 SHIELDS 24 AWG
SEE NOTE 2
PH SENSOR WITH TC
TB1-
4
5
7
10
RECOMMENDED CABLE
4 WIRES SHIELDED
22 AWG. SEE NOTE 2
WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.
NOTES ON SHEET 2 OF 2
NOTES: UNLESS OTHERWISE SPECIFIED
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BILL OF MATERIAL
APPROVALS DATE
DRAWN B. JOHNSON 5/3/04
CHECKED J. FLOCK 5/6/04
PROJECT ENGR APVD J. FLOCK 5/6/04
THIS DWG CREATED IN SOLID EDGE
Uniloc
Rosemount Analytical Uniloc Division 3400 Yorba Linda Pkwy Irvine, CA 92626
TITLE
SCHEMATIC, INSTALLATION
5081-P-FI XMTR
ATEX ZONE 0
SIZE D DWG NO. 1400293 REV A
SCALE NONE TYPE SHEET 1 OF 2
5-6-04 RELEASE DATE
8925 ECO NO.
A REV

INFRARED REMOTE CONTROLLER (IRC) - KEY FUNCTIONS

The infrared remote controller is used to calibrate and program the transmitter and to display diagnostic messages. See figure below for a description of the function of the keys.

Hold the IRC within 6 feet of the transmitter, and not more than 15 degrees from the center of the display window.

RESET - Press RESET to end the current operation and return to the main display. Changes will NOT be saved. **RESET does NOT return the transmitter to factory default settings.**

ARROW KEYS - Use ↑ and ↓ keys to increase or decrease a number or to scroll through items in a list. Use the ← or → keys to move the cursor across a number. A flashing word or numeral shows the position of the cursor.

CAL - Press CAL to access the calibration menu.

PROG - Press PROG to access the program menu.

DIAG - Press DIAG to read diagnostic messages.

HOLD - Press HOLD to access the prompts used for turning on or off the hold function.

ENTER - Press ENTER to move from a submenu to the first prompt under the submenu. Pressing ENTER also stores changes in memory and advances to the next prompt.

NEXT - Press NEXT to advance to the next submenu or to leave a message screen.

EXIT - Press EXIT to end the current operation. Changes are NOT saved.

Infrared Remote Controller.

IRC - INFRARED REMOTE CONTROL

REMOTE CONTROL LR 34186 Exia
INTRINSICALLY SAFE EQUIPMENT
HAZARDOUS AREA LOCATIONS:
CLASS I, DIV 1, GP A, B, C, D
CLASS I, DIV 2, GP A, B, C, D
T3C Tamb = 40°C T3 Tamb = 80°C
1.5Vdc AAA BATTERIES
EVEREADY E92/1212
DURACELL MN2400/PC2400

SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY

PN 23572-00

WARNING:
TO PREVENT IGNITION CHANGE BATTERIES IN A NONHAZARDOUS AREA ONLY

IS/I/1/A,B,C & D
NI/I/2/A,B,C & D
T4 Tamb = 40°C
T3A Tamb = 80°C
FM APPROVED

Baseefa02ATEX0198
II 1G EExia IIC T4 CE 1180
1.5Vdc AAA BATTERIES
EVEREADY E92/1212
DURACELL MN2400/PC2400
ROSEMOUNT ANALYTICAL 92606 USA

YEAR

START-UP CONFIGURATION AND CALIBRATION — pH

To perform a two-point buffer calibration, follow these steps:

1. Place the pH sensor in the first buffer solution.
2. On the remote, press CAL, ENTER, ENTER.
3. Use the arrow buttons to select the correct buffer value. Press ENTER.
4. Rinse the sensor and place it in the second buffer solution. Press ENTER.
5. Use the arrow buttons to select the correct buffer value. Press ENTER.

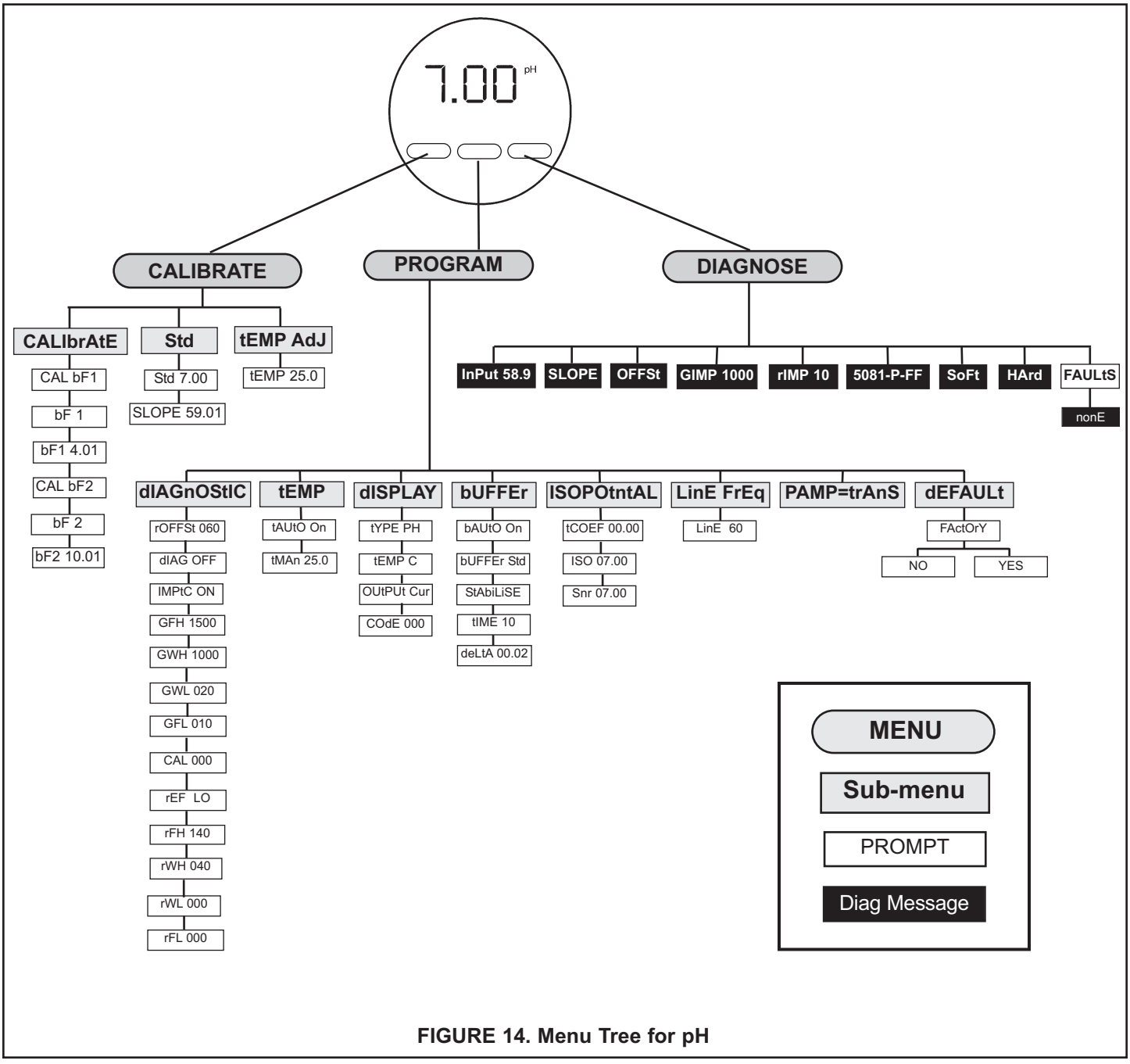

FIGURE 14. Menu Tree for pH

START-UP CONFIGURATION AND CALIBRATION — ORP

To perform a one point standardization, follow these steps.

1. Place the ORP sensor in the ORP buffer solution.
2. On the Remote press CAL, ENTER, ENTER
3. Use the arrow buttons to adjust the value. Press ENTER
4. Press RESET

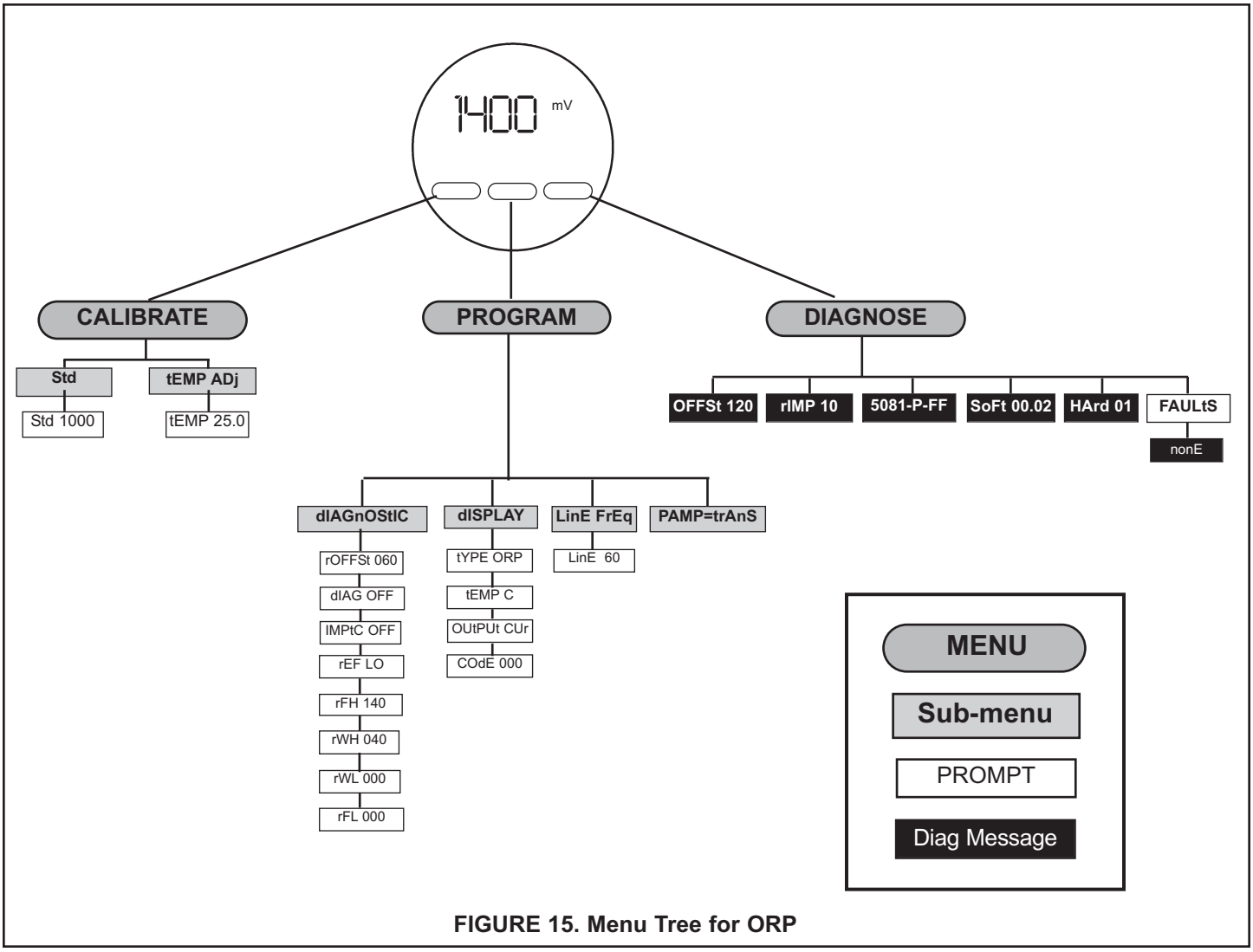

FIGURE 15. Menu Tree for ORP

PROGRAM MENU MNEMONICS

5081-P DISPLAY	MANUAL TEXT	MEANING
CALibrAtE	CALIbrAtE	Calibration menu
Std	Std	Standardize sensor
bF1 / bF2	bF1 / bF2	Buffer 1 / Buffer 2
SLOPE	SLOPE	Sensor slope
Hold	HoLd	Set hold
FAULt	FAULt	Set fault
dPn	dPn	Set output dampening
dIAGnoStic	dIAGnoStic	Diagnostic submenu
rOFFSt	rOFFSt	Reference offset
IMPtC	IMPtC	Glass impedance temperature compensation
GFH	GFH	Glass fault high
GWH	GWH	Glass warning high
GFL	GFL	Glass fault low
GWL	GWL	Glass warning low
CAL	CAL	[Factory use only]
rEF	rEF	Set high/low impedance reference
rFH	rFH	Reference fault high
rWH	rWH	Reference warning high
rFl	rFL	Reference fault low
rWL	rWL	Reference warning low
tEMP	tEMP	Temperature units
tAUtO	tAUtO	Automatic temperature compensation
tMAn	tMAn	Manual temperature compensation
tYPE	tYPE	Measurement type (pH/ORP)
diSPLAY	diSPLAY	Display submenu

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